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ECONOMIC COMMITTEE FOR
FISHERIES –
59TH PLENARY MEETING REPORT
(PLEN-18-03)

Edited by Clara Ulrich & Hendrik Doerner

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Abstract

Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries, C(2016) 1084, OJ C 74, 26.2.2016, p. 4–10. The Commission may consult the group on any matter relating to marine and fisheries biology, fishing gear technology, fisheries economics, fisheries governance, ecosystem effects of fisheries, aquaculture or similar disciplines. The Scientific, Technical and Economic Committee for Fisheries hold its 59th plenary on 12-16 November 2018 in Brussels.

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59th PLENARY MEETING REPORT OF THE SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES (PLEN-18-03)

PLENARY MEETING

12-16 November 2018, Brussels

1. INTRODUCTION

The STECF plenary took place at the Centre Borschette, Brussels, from 12 to 16 November 2018. The chair of the STECF, Clara Ulrich, opened the plenary session at 11:00h. The terms of reference for the meeting were reviewed and discussed and consequently the meeting agenda agreed. The session was managed through alternation of plenary and working group meetings. Rapporteurs for each item on the agenda were appointed and are identified in the list of participants. The meeting closed at 16:00h on 16 November 2018.

2. LIST OF PARTICIPANTS

The meeting was attended by 28 members of the STECF, three invited experts and two JRC personnel. 14 DG MARE attended parts of the meeting. Section seven of this report provides a detailed participant list with contact details.

The following STCF members were unable to attend the meeting:

1. Haritz Arrizabalaga
2. Massimiliano Cardinale
3. Hazel Curtis
4. Hilario Murua

3. INFORMATION TO THE PLENARY

2018 meetings:

The STECF was informed on updates of planning for meetings in the 2nd half 2018.

- EWG MAP for EU fisheries exploiting demersal stocks in Adriatic Sea – postponed to 2019, venue tbd, chair E. Jardim

4. ASSESSMENT OF STECF EWG REPORTS

4.1 EWG 18-11 New FDI

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

The Expert Group met from 10-14 September in Ispra Italy. 25 experts were attending the meeting (3 STECF members), representing expertise from 18 countries, plus 1 observer.

Synthetically, the ToRs of the EWG were the following:

1. Review and document completeness of the data set and feedback from Member States on approaches used and problems encountered in responding to the data call.
2. Test the compatibility between the data collected in the New-FDI database and the data collected in the Mediterranean and Black Sea database.
3. Produce maps of spatial effort and landings by c-squares
4. Provide catches, landings and discards data for exemptions in discard plans

The EWG addressed almost all the Terms of Reference. Here the main observations from STECF, for each ToR, are reported.

ToR 1: Review and document completeness of the data set and feedback from Member States on approaches used and problems encountered in responding to the data call.

This ToR was addressed by taking care of three main aspects, namely:

- ✓ Data transmission issues related to the data call:

The vast majority of issues were primarily of technical nature, arising for a variety of reasons. In many cases, they related from different interpretations of what was requested under the data call. Other issues were related to some data missing for some countries or some years.

Other data issues relate to inconsistencies and errors in data, namely: different approaches used to estimate 'unwanted catch' (2 data sources: logbooks and surveys); some Member States (MS) did not carry out any estimation of 'unwanted catch' for Table A (because they miss a clear interpretation on how to derive it from other FDI data call tables); some cases of wrong geo coding and the use of confidential flag.

STECF observes that most issues and associated explanations are given in the annex 1 of the report (Member States sections on Methodology, Data availability, Coverage, Problems encountered and other comments). Only those issues that could not be explained were included in the Data Transmission Monitoring Tool (DTMT). STECF observes that not all the experts attending the EWG were aware of the causes of the data issues raised from the check on MS data, even for their own MS. In some cases the experts were not very familiar with their respective MS's data collection system and in most cases it was not easy to have

input on DTMT because the objective of the tool was not very clear to experts. The EWG 18-11 decided to leave the decisions on how to populate the DTMT tool to the co-chairs. It was also agreed that only the main issues that prevented the expert group to respond to the requests from DG MARE (ToRs 2, 3 and 4) should be entered into the DTMT. This is the reason why outstanding issues reported in the DTMT are limited to issues that have affected the ability of the EWG to respond adequately to Items 2 and 4 of the ToRs. STECF considers this was a sensible and pragmatic approach, but notes that this shifts the responsibility on one or two persons (chair/co)chairs to decide upon what comes into the DTMT, and that this approach will also then not cover all transmission failures by all Member States. STECF notes that the existing guidelines on the content and use of the DTMT would benefit from further development.

- ✓ Consistency of data provided in response to the data call with EUROSTAT statistics:

The most notable difference between this FDI data call and the data submitted to Eurostat was observed for Spain. This was due to a data error in submission of FDI Table A (catch) data by Spain. Otherwise, the vast majority of the differences observed in terms of vessel numbers related to MS excluding inactive vessels.

STECF observes that FDI data call letter was not clear about whether data release by MS should include the whole fleet (active and inactive) or just active vessels, and notes that this should be made clearer in future data calls.

- ✓ Establishing common best practices:

The data call includes the following tables on landings and unwanted catches:

Table A: Catch data for all landings, both those from metiers selected for biological sampling and otherwise

Table C: Unwanted catch based on biological data (age based)

Table D: Unwanted catch based on biological data (length based)

Table E: Landings based on biological data (age based)

Table F: Landings based on biological data (length based)

The estimates of different catch fractions by metier in table A were either not provided or, where they were provided by MSs, they were derived using different methods. Additionally, some MS expressed concerns on the exercise of partitioning unwanted catches from table C and D to table A. STECF recognizes the need to provide guidelines to MSs as to how such estimates should be derived for future FDI data calls.

STECF also notes that the definition of the unwanted catches was interpreted differently by MSs.. Some countries included the BMS landings (landings below MCRS) in the total weight of landings while others included BMS in the unwanted catches and others included in both fields. The EWG 18-11 proposed to include all unwanted catch fractions, including landings below MCRS in 'unwanted catch' field. While such an approach is pragmatic, should the FDI database be used as the input data for stock assessments, it would mean that there would be no means of determining the fractions of unwanted catch that were either discarded or landed.

STECF observes that EWG 18-11 was asked to review the methodology developed by JRC to be applied for the partitioning of the age and length profiles for landings and unwanted catch from table C&D to Table A. However, the group did not have the time to review this methodology. STECF also notes that to do this partitioning, all domain names in table A need to match with domain names used in table C and D, which was not the case for this

data call. STECF proposes that tables C and D should be uploaded before table A. When uploading table A afterwards, upload checks should be performed that controls that the domain names in table A are already present in tables C and D.

STECF observes that the rationale for marking data records as confidential varied by MS. Some MS considered that none of the data records should be considered confidential, while other MS marked many fields as confidential, although the justifying comments were often uninformative about the confidentiality criteria applied by the individual Member States. Confidential data sets covers less than 5% of the total value of a given data variable in some regions, while in some other regions it can sum up to 100%. STECF observes that for the 2018 FDI data call, the guidelines on which data should be considered confidential were not clear and this needs to be clarified ahead of any future data calls. In the EWG 18-11 report, all data marked as confidential have been omitted from the spatial maps.

Other data issues that need common approach to be solved were mainly related to link between tables, mainly due to checked inconsistencies between tables' domains. STECF observes that discussion on each of these issues and corresponding solutions proposed are elaborated in the EWG report and these proposals can be used to improve the next FDI data call.

ToR 2: Test the compatibility between the data collected in the New-FDI database and the data collected in the Mediterranean and Black Sea database.

STECF observes that the purpose this ToR is to investigate whether it would be possible to have in the future a unique and comprehensive transversal database in order to rationalise the DCF data call process. A reduction in the number of tables requested under the Med&BS data call and a reduction in workload for Member States would be possible, if true compatibility between databases can be demonstrated. There are some reasons why the two databases could differ, all these are described in the EWG report. To reply to the ToR, checks on consistency were done on different aspects. STECF observes that the main issues and inconsistencies identified are of a technical nature and mostly relate to coding inconsistencies or to incompatibility in definitions (e.g. for unwanted catch).

STECF observes that among the deliverables of the ongoing MARE/2016/22 project "STrengthening REgional cooperation in the Area of fisheries biological data collection in the Mediterranean and Black Sea (STREAM)", is the development of routines to compile some of the tables (Tables C, D, E, F) required by the FDI Data Call using the Med&BS tables as input, in order to use the same raised length distribution for all the Data Calls, avoiding inconsistencies among the delivered tables. The project is expected to be finalised in 2019, and would thus contribute to facilitating the processes involved in the multiple data calls and improving their consistency.

ToR 3: Produce maps of spatial effort and landings by c-squares

STECF observes that in order to reply to ToR 3 maps of spatial effort and landings by c-squares were created, by EWG 18-11, for all the EU regions and Distant waters as well as for some gear categories. All maps were prepared first by checking and cleaning erroneous data records and removing those marked as confidential. STECF observes that the main issue encountered in producing the maps for the main fishing zones and for the macro gear categories is the incorrect allocation of the coordinates to records. Data reported as confidential were omitted from the mapping and when creating the maps for the report every map was checked against outliers. Additionally, some Member States required their

data to be omitted in the areas where fishing effort occurred that allowed self-identification of individual vessels.

STECF notes that numerous inconsistencies and errors were identified in the spatial data for landings and effort submitted by Member States that could not be resolved during the EWG meeting (wrong allocation of latitude and longitude, wrong geographic resolution, incorrect unit of measurement, records with no sub region, records with incorrect gear indication, records with incorrect mesh size indication). In addition, for some fleets and Member States, the data were specified as confidential. In each of these cases the data records were omitted from the spatial plots. Consequently, the spatial plots do not reflect the true spatial extent and magnitude of landings and effort.

ToR 4: Provide catches, landings and discards data for exemptions in discard plans

STECF observes that EWG 18-11 was not in the position to fully answer the request in TOR 4 on the basis of data available in the FDI database. In order to calculate the catch associated to a specific exemption, more detailed data would be required than available in the FDI database. For instance, the data call asked for estimates of unwanted catch, which constitute both unwanted catches that were landed and those that were discarded. There was no specific call for discard estimates. Hence discards cannot be estimated using the data provided under the data call.

Therefore, any estimate provided under TOR4 for unwanted catch of species under the landing obligation cannot be interpreted as discards for e.g., control purposes of *de minimis* exemptions. Furthermore providing reliable and robust estimates of catches, i.e. landings and unwanted catch for fleets that are granted exemptions from the landing obligation is problematic: for many of these fleets, estimates are unavailable, because unwanted catch is not sampled, and for those fleets where unwanted catches have been sampled, the achieved sampling coverage is often much lower than required to provide a robust estimate of the true unwanted catch fractions. Alternatively, official logbook information could be used but for most MS and fisheries, the records of unwanted catch fractions (discards + BMS landings) in logbooks are believed to be an unreliable source of information, since the landing obligation is still not fully implemented and major problems with compliance were reported by all experts.

Taking into account these substantial issues EWG 18-11 considered that it would be misleading to estimate the unwanted catch fraction for those catches that were not sampled. Consequently, the unwanted catch estimates given in Table A and for those fleets granted exemptions from the landing obligation were provided only for those fleets for which MS provided sample estimates.

General observations

Generally STECF observes that the discussion on the release of some data (e.g. unwanted catches, confidentiality flags) highlighted that the purpose and objectives of the FDI data call and database are still not fully clear, now that there is no more direct management of the fishing effort in place. The EWG requested that DG-MARE and STECF clarify the purpose and objectives of creating and maintaining the new FDI database and in particular which data should be disseminated to the public and how. Indeed, STECF observes that while the EWG 18-11 agreed on the benefits of having a database publicly available, there are still concerns on how the data would be used by third parties, particularly the sampling data (unwanted catches and biological estimates).

STECF conclusions

STECF concludes that while the EWG addressed all ToRs appropriately, the data as provided by Member States in response to the 2018 FDI data call was deficient in a number of areas meaning that the compiled database is incomplete.

STECF concludes that for future data calls, care is taken to ensure comparability between the data submitted in response to the FDI call and other data sources. For example it needs to be clearly indicated whether the data called for relate to the entire MS fleet (active and inactive vessels) or to active vessels only.

STECF acknowledges that to request data at high levels of aggregation, e.g. unwanted catches, requires validated and tested estimation procedure that respects the sampling design and the samples available in the targeted aggregation level. It is therefore desirable that guidance are provided on how biological sampled estimates (tables C and D) could be partitioned into table A. It is therefore essential that RCGs discuss and agree on how best to tailor their sampling plans to introduce sufficient flexibility at the required levels of aggregation.

The EWG was unable to conduct a thorough review of the methodology developed by the JRC to partition catches (wanted and unwanted) by age and length. The computations to do so are trivial provided that the domain names in Tables C to F match those used in Table A. STECF suggests that two actions are required to ensure that partitioning of catches by age and length is undertaken properly; i) the 'R' script developed by the JRC must be thoroughly reviewed and tested and ii) the upload facility should be modified to ensure that the domain names in all tables are consistent. A possible solution to resolve any inconsistencies in domain names would be to require member states to upload Tables C to F before Table A so that any inconsistencies in domain names in table A can be identified using an upload consistency routine.

STECF concludes that if the FDI database is to be continued, the process should be split into two EWGs, as is e.g. the case with the Annual Economic Report. A dedicated Expert Group meeting should be first convened to check the data provided by MS in response to the FDI data call. Then the data analyses and requests for advice should be performed in a follow-up Expert Group.

STECF concludes that the criteria used by Member State to flag some data as confidential should be clarified. STECF proposes that data marked as confidential are not publicly disseminated when disaggregated to individual Member State level, but could be included in tables where data from all MS are aggregated together. This is consistent with most European national statistical approach and Eurostat. For the case of data provided in 2018 where several data were flagged as confidential, the aggregated dissemination tables should be sent to MS for approval before public release.

To clarify and improve future reporting and evaluation of data transmission issues, STECF suggests that the DTMT itself and the associated guidance document be reviewed (see conclusions to section 4.7 of this report).

4.2 EWG 18-12: Stock assessments in the Mediterranean Sea 2018 - Part 1

Request to the STECF

STECF is requested to review the report of the STECF Expert Working Group meetings, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

The working group was held in Ispra, Italy, from 17th to 23rd September 2018. The meeting was attended by 18 experts in total, including one STECF member, two JRC experts and one observer.

The objective of the EWG 18-12 was to carry out demersal stock assessments as defined in the EWG ToRs.

STECF comments

STECF considers that the EWG addressed adequately all ToRs. STECF notes that the EWG carefully reviewed the quality of the assessments produced. Some analyses were considered to be suitable for short term forecasts, others were only considered sufficiently reliable to estimate F-status, and no forecast was produced.

A total of 18 area/species combinations were evaluated (Tables 4.1.1 and 4.1.2). The EWG has carried out short term forecasts for 13 age-based assessments. Catch advice for four stocks was based on biomass index methods. For one stocks no catch advice has been provided. The main results are summarized in the bullets points below. Overall, the assessments indicate that all stocks but one are significantly being overfished, and that biomass is stable at low level or decreasing for the majority of the stocks:

- Hake in GSA 1-5-6-7 is stable but is being overfished. Catches should be reduced by at least 74% to reach F_{MSY} in 2019.
- Hake in GSA 9-10-11 is decreasing and the stock is being overfished. Catches should be decreased at least 72% to reach F_{MSY} in 2019.
- Red Mullet in GSA 1 is stable but is being overfished. Catches should be reduced by at least 85% to reach F_{MSY} in 2019.
- Red Mullet in GSA 5: the data available does not allow for catch advice for 2019.
- Red Mullet in GSA 6 is stable but is being overfished. Catches should be reduced by at least 70% to reach F_{MSY} in 2019.
- Red Mullet in GSA 7 is stable but is being overfished. Catches should be reduced by at least 63% to reach F_{MSY} in 2019.
- Red Mullet in GSA 9 is increasing but the stock is being overfished. Catches should be decreased at least 49% to reach F_{MSY} in 2019.
- Red Mullet in GSA 10 is increasing and the stock is being fished below F_{msy} . Catches in 2017 are not known, but indications are that an increase in catch would be possible in 2019 while staying below F_{msy} .

- Norway Lobster in GSA 5 is decreasing and the stock is being overfished. Catches should be decreased at least 90% to reach F_{MSY} in 2019.
- Norway Lobster in GSA 6 is increasing but the stock is being overfished. Catches should be decreased at least 57% to reach F_{MSY} in 2019.
- Norway Lobster in GSA 9 is decreasing. Catches in 2017 are uncertain. In order to comply with precautionary considerations catches should be decreased at least 74% relative to catches of 2014-2015, the years where catches reporting aligns with effort data.
- Norway Lobster in GSA 11 is decreasing and the stock is being overfished. Catches should be decreased at least 40% to comply with precautionary considerations.
- Deep water rose shrimp in GSA 1-5-6-7 is increasing, however a decrease in catch of 36% is recommended to comply with precautionary considerations..
- Deep water rose shrimp in GSA 9-10-11 is decreasing and the stock is being overfished. Catches should be decreased at least 57% to reach F_{MSY} in 2019.
- Blue and red shrimp in GSA 1 is stable though the stock is being overfished. Catches should be decreased at least 2% to reach F_{MSY} in 2019.
- Blue and red shrimp in GSA 5 is increasing, however, a decrease in catch of 12% is recommended to comply with precautionary considerations.
- Blue and red shrimp in GSA 6 is decreasing and the stock is being overfished. Catches should be decreased at least 58% to reach F_{MSY} in 2019.
- Giant red shrimp in GSA 9-10-11 is decreasing and the stock is being overfished. Catches should be decreased at least 57% to reach F_{MSY} in 2019.

STECF considers that for all of the thirteen age-based assessments presented in the report, these assessments can be used to give advice on stock status in terms of F relative to F_{msy} , and to provide catch advice for 2019. STECF notes that these assessments are based on short data series and some degree of uncertainty therefore remain, but STECF considers overall that they provide a robust guidance on the magnitude of changes in F and catches required to reach F_{msy} in 2019.

For all the stocks with advice based on abundance index, a precautionary buffer of a -20% catch reduction has been applied. STECF notes that this approach is consistent with the procedures applied in the North East Atlantic (ICES stocks).

STECF notes that the EWG has estimated and provided values of F_{MSY} and MSY ranges for thirteen stocks. However due to the short data time series the MSY intervals could not be properly evaluated. Nevertheless, the estimates of F_{low} and F_{MSY} are considered reasonable estimates that can be expected to be precautionary and STECF considers that they can be used directly. The values for F_{upper} are indicative only; they have not been evaluated as precautionary and should not be used to give catch advice without further evaluation.

STECF notes that for Mullus in GSA 5 the dominant Mullus species is *Mullus surmuletus* which forms 87% of catches, whereas only *Mullus barbatus* was being requested for assessment and is included in the EU Multi-Annual Management Plan. Additionally, STECF notes that *Mullus barbatus* could not be assessed properly because of low catches. For the future, STECF suggests that the Mullus species of primary interest in GSA 5 should be striped red mullet, *Mullus surmuletus*, and not red mullet *Mullus barbatus*.

STECF notes that for deepwater rose shrimp in GSA 9-10-11 the indices of biomass of the stocks (through MEDITS surveys) as well as catch are increasing at a different rate in

different GSAs; in particular GSA1 does not show the same rapid increase seen in other areas in recent years.

STECF notes that F MSY target values for Red mullet cover large range in different GSAs from 0.22 to 0.64. The reason for this wide range comes partly from the age range for F which differs across the stocks, but could also be linked to differences in selection parameters, i.e. catch at age structure (particularly for GSA 7), as well as differences in the growth parameters and natural mortality across the different GSAs evaluated.

STECF notes that data quality deficiencies and recommendations for further research studies and data collection have been comprehensively addressed by the EWG for each stock in section 7 of the report. Significant errors and inconsistencies (explained in details in the report) were observed in some GSAs in effort data from the Med & Black Sea data call. This issue appears to affect mostly Italian data. The quality of effort data does not affect the outcomes of stock assessment themselves, but STECF notes that requests under ToR 4 could not be properly addressed. It is also noted that French data in general are sparse, which affects the quality of the stock assessments that cover GSA7. STECF notes that these errors have been reported in the DTMT (Data Transmission Monitoring Tool) and should be addressed and corrected before the next submission.

Table 4.2.1. Summary of work was attempted and basis for advice (given in bold). a4a, XSA, and SS3 are age based assessment methods; STF is a standard short term projection with assumptions of status quo F in the intermediate year (2018) recent historic recruitment for 2017 and 2018, and averages of mean weight, maturity and natural mortality over the most recent three years.

Area	Species	Previous Analysis / year	Attempted analyses and basis of advice (in bold)
1_5_6_7	Hake	XSA, 2015	a4a STF
9_10_11	Hake	XSA 2015	a4a STF
1	Red Mullet	XSA 2014	a4a STF
5	Red Mullet	XSA, 2013	a4a No Advice
6	Red Mullet	XSA, 2014	XSA a4a STF
7	Red Mullet	XSA, 2014	XSA a4a STF
9	Red Mullet	XSA,2014	a4a STF
10	Red Mullet	VIT, 2012	a4a STF
5	Norway lobster	XSA, 2017	a4a STF
6	Norway lobster	SepVPA, 2017	a4a STF
9	Norway lobster	XSA, 2017	XSA a4a Index Advice
11	Norway lobster	XSA, 2017	XSA a4a Index Advice

1_5_6_7	Deep-water rose shrimp	not assessed before	XSA, a4a Index advice
9_10_11	Deep-water rose shrimp	XSA, 2016	XSA a4a STF
1	Blue and red shrimp	XSA, 2015	a4a STF
5	Blue and red shrimp	not assessed before	Index advice
6	Blue and red shrimp	XSA, 2015	a4a STF
9_10_11	Giant red shrimp	not assessed before	a4a STF

Table 4.2.2. Summary of advice from EWG 18-12 by area and species. F 2017 is terminal F in the assessment. Change in F is the difference as % change between targeted F in 2019 (F_{msy}) and the estimated F in 2017. Change in catch is % change from catch estimated in 2017 to catch projected in 2019. Biomass status is given as an indication of trend over the last 3 years (2015-2017) for stocks with time series analytical assessments or biomass indices.

Area	Species	Method/ basis	F 2017	F 2019	Change in F	Catch 2017	Catch 2019	Change in catch	Biomass (status)
1-5-6-7	Hake	a4a	1.14	0.23	-80%	3172	819	-74%	Stable
9-10-11	Hake	a4a	0.55	0.14	-75%	1782	494	-72%	Decreasing
1	Red Mullet	a4a	1.47	0.26	-82%	231	35	-85%	Stable
5	Red Mullet	No advice							
6	Red Mullet	a4a	1.2	0.22	-82%	1607	482	-70%	Stable
7	Red Mullet	a4a	1.3	0.64	-51%	354	130	-63%	Stable
9	Red Mullet	a4a	1.57	0.54	-66%	1601	812	-49%	Increasing
10	Red Mullet	a4a	0.25	0.54	84%	596**	1056		Increasing
5	Norway lobster	a4a	0.73	0.13	-82%	34	3.3	-90%	Decreasing
6	Norway lobster	a4a	0.44	0.12	-73%	290	125	-57%	Increasing
9	Norway lobster	Index				Not known*	90		Decreasing
11	Norway lobster	Index				28.3	17.1	-40%	decreasing
1-5-6-7	Deep-water rose shrimp	Index				998	638.4	-36%	Increasing
9-10-11	Deep-water rose shrimp	a4a	1.68	0.74	-56%	1507	644	-57%	Decreasing

1	Blue and red shrimp	a4a	0.73	0.42	-42%	99	97	-2%	Stable
5	Blue and red shrimp	Index				171	150	-12%	Increasing
6	Blue and red shrimp	a4a	0.96	0.32	-67%	527	223	-58%	Decreasing
9-10-11	Giant red shrimp	a4a	1.12	0.57	-49%	399	171	-57%	Decreasing

**Estimated, *Catch in 2014-15 = 112 tonnes, and is considered the best estimate of recent catch.

STECF conclusions

STECF concludes that the EWG addressed all ToRs appropriately.

STECF concludes that the results of the accepted assessments by EWG 18-12 provide reliable information on the status of the stock and the trends in stock biomass and fishing mortality. STECF endorses the assessments and evaluation of stock status produced by the EWG.

STECF concludes that the errors reported in the DTMT should be addressed and corrected before the next submission

4.3 EWG 18-14 Balance/Capacity

Request to the STECF

The STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF response

STECF reviewed the report of EWG 18-14 and notes that all of the terms of reference were addressed during the meeting.

STECF notes that DG Mare during the meeting of the EWG expressed the usefulness of previous reports in relation to addressing the initiatives and developments at the Member State level in order to secure balance between fleet capacity and fishing opportunities.

STECF observes that the EWG addressed ToR 1-4 using the same approach as previous years. In ToR 1, the six balance indicators were calculated and presented by Member State, i.e. (i) the Sustainable harvest indicator (SHI), (ii) the Stocks at risk indicator (SAR), (iii) the Return on investment (ROI) and/or Return on Fixed Tangible Assets (RoFTA), (iv) the Ratio between current revenue and break-even revenue (CR/BER), (v) the inactive fleet indicators, and (vi) the vessel use indicator. In ToR 2, the action plans proposed by Member States in their annual report were assessed, and commented on in ToR 3. Finally, a list of fleet segments considered being out of balance according to the SHI and SAR indicators are presented.

STECF reiterates its concerns as stated in the balance report from last year (STECF-17-18) about the usefulness and reliability (individually or in combination) for identifying fleet segments out of balance with the fishing opportunities thus requiring an action plan by Member States.

Several EWG's process data and calculate indicators that potentially could be used to inform on whether fishing capacity is in balance with fishing opportunities. Examples are the EWG related to the Annual Economic report (STECF 18-07) and the Fisheries Dependent Information (STECF 18-11) as well as the CFP expansion on indicators (STECF 18-15). It is important to take into account the outcomes of such EWGs to ensure consistency between EWGs.

In ToR 5, the EWG estimated, when possible, the abovementioned six balance indicators for specific Outermost Regions (OMR). STECF observes that the balance indicators could be calculated fully for the Portuguese OMRs, and partly for the Spanish OMRs, but not for the French OMRs by lack of available data.

Finally, ToR 6 addressed potential improvements in the indicators used to describe the balance between fleet capacity and fishing opportunities. In relation to ToR 6, STECF welcomes the initiative to investigate possible new biological indicators to address the balance issue.

In the current 2014 EC Balance Indicator Guidelines, two biological indicators are used:

- 1) the Sustainable Harvest Indicator (SHI) being a measure of how much a fleet segment relies on stocks that are overfished, where "overfished" is assessed with reference to F_{msy} values over time, and reliance is calculated in economic terms using value of landings

- 2) the Stock at Risk (SAR) Indicator being a measure of how many biologically vulnerable stocks are being affected by the activities of the fleet segment, where “vulnerability” is assessed to be stocks below B_{lim} , prohibited for direct fishery/lowest possible level, under regulation requiring to release caught fish unharmed or on the IUCN “red list” or CITES list.

STECF observes that the EWG considered three possible additional indicators:

- 1) Number of Overharvested Stocks (NOS) indicating the number of stocks exploited by a fleet segment for which the ratio of F/F_{MSY} is greater than 1.0 that are exploited by a fleet segment
- 2) The Number of Stocks at Risk (NSR) being a subset of the current SAR indicator keeping only the quantitative criterion (stocks below B_{lim} based on analytical assessments, criterion a) and excluding thus the qualitative criteria (criteria b-d)¹ : this additional information with clear sources should ease the interpretation of SAR outcomes.
- 3) The Economic Dependency Indicator (EDI) showing how reliant a particular fleet segment is on the revenue obtained from stocks that are being exploited at a rate that is not consistent with MSY

STECF observes that the EWG managed to address several aspects of the three indicators, but also mentions that further testing and analysis are needed before decisions are made regarding these. STECF also observes that any change in indicators should be carefully implemented in order to keep the continuity in time series and thus development over time.

STECF finally observes that assessing overcapacity also requires an evaluation of how far the current situation stands from the target, especial in terms of fishing mortality. This was the initial intention of the SHI indicator, but EWG 18-14 presents several issues that gives rise to criticism of the SHI indicator. STECF notes that a detailed description and discussion of the methodology can be found in the STECF report 15-02

STECF conclusions

STECF endorses the findings from the EWG, and concludes that EWG has given a range of valuable inputs for potential future developments of this report in ToR 5 and ToR 6, despite that ToR 5 could only be partly addressed due to insufficient availability of data.

STECF concludes that the guidelines on balance indicators (COM (2014) 545 Final) should be revised in line with previous advices, taking into account concerns and proposals in previous EWG reports. This revision would improve the possibility for the Commission and Member States to meet their obligations under Article 22 of the CFP (Regulation (EU) No 1380/2013).

STECF also concludes that a revision should:

1 b) subject to an advice to close the fishery, to prohibit directed fisheries, to reduce the fishery to the lowest possible level, or similar advice from an international advisory body, even where such advice is given on a data-limited basis; or

c) subject to a fishing opportunities regulation which stipulates that the fish should be returned to the sea unharmed or that landings are prohibited; or

d) a stock which is on the IUCN ‘red list’ or is listed by CITES.

- 1) Discuss, analyse and test potential new indicators, for instance in dedicated EWGs, in order to assess and compare the indicators currently used and newly proposed indicators towards given criteria e.g. robustness, sensitivity, easy and unambiguous calculation. A suitable approach could be to test the indicators through simulation as well as for typical situations in Area 27, Area 37 and OFR to ensure the robustness of the indicators in light of the data available
- 2) Consider adopting the approach proposed by the EWG to assess the balance between capacity and fishing opportunities at the fishery level rather than separately by fleet segment. In this context the fishery constitutes all fleets from all Member States that have a fishing opportunity for a stock or group of stocks. Separate fleet segment indicators could then inform on whether the segments concerned are overcapitalised which in turn would be informative to MSs for fleet management.
- 3) Consider further analysis of the SHI indicator including testing the SHI indicator restricted to overexploited stocks

References

- Scientific, Technical and Economic Committee for Fisheries (STECF) – Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (STECF-17-18). Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-67490-7, doi:10.2760/43896, JRC109762
- Scientific, Technical and Economic Committee for Fisheries (STECF) – The 2018 Annual Economic Report on the EU Fishing Fleet (STECF-18-07). Publications Office of the European Union, Luxembourg, 2018, JRC112940, ISBN 978-92-79-79390-5, doi:10.2760/56158
- Scientific, Technical and Economic Committee for Fisheries (STECF) – Fisheries Dependent -Information – New-FDI (STECF-18-11). Publications Office of the European Union, Luxembourg; in press

4.4 EWG 18-15 CFP monitoring: expansion of indicators

Request to the STECF

The STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

EWG 18-15 met in Brussels between 1st and 5th October 2018 to discuss and try to develop an expanded list of indicators for broader based CFP monitoring also covering ecosystem effects and effects on society.

To answer the TORs, the EWG 18-15 suggested the adoption of a number of experimental indicators and identified and developed a number of potential new indicators in each of the following categories: fishery indicators, selectivity indicators, ecosystem indicators, economic indicators and social indicators.

EWG 18-15 reviewed seven experimental fishery indicators that have been included in previous CFP Monitoring reports. It also suggested a new, ready to be used, indicator on recruitment trends. (see TOR 5.4 of this plenary report).

Additionally, the EWG proposed several indicators, covering the following areas:

- Fishery indicators covering technical measures to illustrate progress in improving selectivity;
- Ecosystem indicators;
- Economic indicators, including an Economic dependency indicator;
- Social indicators.

STECF notes that the EWG discussed the applicability and usefulness of these new indicators. In particular, the EWG evaluated many of them in terms of data requirements and availability and of the robustness of the calculations. STECF observes that it was not possible to complete the investigation and testing of all potential indicators within the frame of a one-week EWG. Therefore, in many cases substantial additional work has to be done before decisions can be made on the suitability and usefulness of the various indicators.

STECF observes that the EWG did discuss options for social indicators including the profiling of selected fishing communities/ports, but it did not discuss in detail possible governance indicators.

STECF conclusions

There is a need for additional technical work and testing for each of the categories of indicators to be performed. This would include pilot testing of, feasibility, applicability and robustness of the indicators identified in the EWG 18-15 but also considering a possible reduction of the number of them.

For the various categories, STECF concludes in particular the following:

Fishery indicators: STECF concludes that for the indicators covering technical measures to assess progress in improving selectivity, there is a need to validate the usefulness and applicability of the new fishery indicators identified by EWG 18-15. That could include an

investigation of the ability of the indicators to detect gear related changes in selectivity (as distinct from other causes of selectivity change e.g. tactical changes relating to spatial activity). Some analysis to determine whether one indicator would suffice (rather than 3) would also be worthwhile. This work could take place through a Technical measures EWG or other type of ad hoc work.

Economic indicators: STECF concludes that for the 3 economic indicators proposed by the EWG, an additional TOR in the (recurring) Annual Economic Report 2019 EWG could be used to explore their applicability at various levels of aggregation beyond the fleet segment (e.g. fishery, member state; region). STECF notes that the economic indicators identified by the EWG are based on partial measures of productivity and that total productivity indicators (including all input factors together, i.e. resources, capital services and labour) can also be applied (reducing the number of indicators from 3 to 1).

The EWG also proposed an additional economic indicator to the 3 above, the 'Economic Dependency Indicator (EDI). This indicator has also been proposed for inclusion in the list of indicators for the assessment of balance between fishing capacity and fishing opportunities (EWG 18-14). The feasibility analysis of this last indicator should therefore be made in this EWG, adding an additional TOR to the balance between fishing capacity and fishing opportunities EWG in 2019.

Ecosystem indicators: For this category of indicators, STECF is unable to identify an existing EWG in which an additional TOR could be included. Therefore, the STECF concludes that a dedicated EWG should be organised in 2019. This additional exercise should perform a feasibility analysis of the 6 indicators shortlisted by the EWG 18-15, trying to apply them to all European ecosystems. The need for preparatory work ahead of this EWG (including data preparation) should also be considered. Additionally, STECF suggests that the landing obligation indicators could also be included in this future EWG.

Social indicators: For this category, STECF is also unable to identify an existing EWG in which an additional TOR could be included. Therefore, STECF concludes similarly that a dedicated EWG should be organised. The analysis of possible governance indicators could also be included in this future EWG. STECF agrees with the EWG 18-15 two stage process – i) building up social and economic profiles of selected fishing communities, which would require time consuming interviews, questionnaires, surveys (i.e. information which is not currently collected under the DCF) and could be issued e.g. every 5 years, and ii) annual or bi-annual synthesis on fishing community reliance and resilience based on the more routinely collected indicator material available from the DCF and other sources such as national general statistics. The participation of EUROSTAT to this EWG could be beneficial.

STECF concludes that ad hoc contracts might be needed in case new data sources have to be taken into account to prepare the data for the calculation of the various indicators.

STECF concludes that there is also a need for another “global indicators EWG” as 18-15, after completion of this additional testing work but before 2019 STECF winter plenary. This EWG would evaluate the usefulness and applicability of the indicators tested, would ensure the broad consistency of approaches across the four disciplines above, and agree on which indicators would be included in the 2020 CFP monitoring report. This meeting would benefit from experts on indicators’ creation and communication (from e.g. EUROSTAT) to have a different perspective in terms of how many indicators are required. This meeting should also consider the consistency in the indicator calculations among the different communications provided by the Commission (AER, Balance report and CFP monitoring).

STECF further concludes that the number of indicators should be maintained at a level at which they provide an added value to the ultimate objective of monitoring the implementation of the CFP. Additionally, STECF also concludes that indicators should be calculated if possible, using data that has been quality validated.

STECF also concludes that the inclusion of narratives in the CFP monitoring reports are important, however, it further concludes that the indicators have to be self-understandable by a general audience.

Finally, while the indicators considered in the EWG are believed to provide insight on the impact of the CFP, STECF concludes that none of the indicators can be totally related to the CFP in causal terms. Therefore, the selection of these indicators has to consider this causal relationship as much as possible. For example, in the case of the economic indicators, external effects (e.g. fuel price change) can affect the value of the indicators proposed with not a causal relationship between the change and the CFP itself. STECF notes that although narratives help, the requirements above should be considered.

4.5 EWG 18-13: Fishing effort regime for demersal fisheries in the western Mediterranean Sea-Part II

Request to the STECF

The STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

The working group was held in Copenhagen, Denmark, from 8 to 12 October 2018.

The EWG 18-13 was a follow-up of the EWG 18-09 held in June 2018 and was largely attended by the same experts. STECF observes that the terms of reference had been discussed internally before the beginning of the EWG but were not published and made available to the EWG participants other than EWG chair and JRC expert prior its start.

As the EWG report was not finalised before the STECF plenary, the STECF commented on a draft version of the report and the presentation held at the plenary on the 13th of November 2018.

STECF comments

STECF notes that the EWG ToRs requested to expand the outcomes of EWG 18-09 concerning the relationship between effort and fishing mortality and the analysis on the differences in fishing pattern and LPUE by fleets. These updates were based on additional data for the French fisheries made available during the meeting.

STECF notes that EWG 18-13 conducted the analysis on the basis of three datasets: Med&Black Sea, AER, FDI. STECF also observes that an additional effort has been made to complement the aggregated data with ad hoc datasets request by DGMARE to the relevant Member States. The additional datasets are referred to haul-by-haul data collected through observer on-board programmes and trip-by-trip data compiled from VMS, logbooks and sales notes. These datasets were provided by France while Italy and Spain (Catalonian fisheries) had provided the trip-by-trip dataset in June and no update was required.

An in-depth comparison of the completeness, coverage and consistency of the datasets was carried out by EWG. STECF notes that the data are overall considered more reliable than in EWG 18-09, but a number of inconsistencies between the datasets still remain, making it difficult to provide a robust quantitative description of the activity of the fleets in the Western Mediterranean.

STECF notes that EWG attempted to fit linear relationships between fishing effort and fishing mortality for a number of stocks and fleet segments. The results obtained were very similar to those of EWG 18-09, showing weak relationships in most cases. However, STECF notes that since the EWG 18-12 stock assessment data were not made available to the EWG 18-13, these fits could only be applied on older assessments with F estimates up to 2014, not 2017.

STECF appreciates the EWG exercises aimed at testing non-linear relationship and at discussing alternative ways to measures fishing effort like hours fished or swept area. However, STECF notes that even the fits of non-linear relationship remain poor and that it

was not possible during the EWG to provide a full time series of alternative effort descriptors, so a relationship with fishing mortality could not be tested.

STECF observes that TOR 4 (calculate the average partial fishing mortality of trawls exploiting the demersal stocks concerned by the MAP, by type of fisheries, effort unit, fleet segment and country, as estimated in the latest stock assessments) was not addressed mainly because of lack of most recent assessment results. STECF notes that a number of stock assessments for the MAP stocks have been performed in 2018 (EWG 18-12), but the report and assessment results were not considered final enough at the time when EWG 18-13 started and the stock assessment results were not available and could not be used by 18-13. Additionally, the analysis of datasets performed in ToR 1 did not allow for a single robust estimate of transversal data (catch and effort data by fleet and metier) and the differences between the different datasets remain unclear and poorly explained. STECF notes however that calculating these partial fishing mortalities is straightforward once the updated datasets of fishing mortality and transversal data (catch and effort) are available, and this step can thus be undertaken as part of Step 1 of the Road Map below.

STECF notes that EWG addressed TOR 5, defining a 2-year roadmap to set-up a mixed fisheries advice for western Mediterranean demersal fisheries. The plan outlines the priorities in the short and medium term, any potential gaps in knowledge/data/modelling and the actions that can be taken to overcome it. STECF notes that the EWG also considered the skills and tools needed, including the actors to be involved, but the actual selection of models and experts' commitment should better be decided during a dedicated scoping meeting, suggested by the EWG 18-13 to be held in March 2019.

STECF conclusions

STECF recalls the conclusions on the opportunities and challenges in the use of fishing effort regimes as a management tool for mixed fisheries reported in PLEN 17-02, PLEN-18-01 and STECF 18-09.

STECF stresses the need to have consistent data as a basis to carry out the assessment and the monitoring of the effects of effort management plans in the western Mediterranean Sea. STECF concludes that the results of the analysis carried out by the EWG on the completeness, coverage and consistency of the various datasets available should be brought to the attention of the Member States concerned to urge the improvement of the quality of available data sets.

STECF concludes that the proposed Management Plan indicates general reductions in effort and that for the stocks and time periods analysed, in both EWGs (18-09 and 18-13) relationship between effort and fishing mortalities cannot be determined and quantified. However, STECF concludes that even if the current data of fishing effort and fishing mortality do not show a clear correlation, this would not prevent the application of procedures to simulate the impacts of effort management measures under alternative assumptions. This exercise may use one or more models that have been already applied and tested in the assessment of management options in the Mediterranean. Indeed, STECF recognizes that there are several models available even if with some various levels of coverage, development, completeness, update, complexity and user-friendliness.

Building on the suggestion from EWG 18-13, STECF proposes the following roadmap to set-up a mixed fisheries advice for western Mediterranean demersal fisheries:

I STEP (2019)	
MODEL SCOPING	<p>Hold a dedicated STECF EWG in (March) 2019 which the main purpose of testing the suitability of various candidate models and the availability of modellers</p> <p>Model(s) selection, on the basis of identified criteria (compatibility with DCF data sets and STECF/GFCM assessment results should be a prerequisite for selection) and conditioned on the availability of modellers. A list of minimum requirements for what a model for the mixed-fisheries advice should be able to do should be agreed in advance of the scoping.</p> <p>Identification of the financial options supporting the development of the work in 2019 and 2020.</p>
DRAFT RUN	Agreement on scenarios, results, and draft mixed-fisheries advice on data available in 2018 (reference year 2017)
II STEP (2020)	
UPDATE AND DEVELOPMENT	<p>Update to 2019 datasets (reference year 2018)</p> <p>Model(s) improvements/extension</p> <p>Discussion and possible overcoming of other gaps and issues related to an operational mixed-fisheries advice: inclusion of other types of fishery that exploit stocks in the MAP, adoption of specific sub-regional fleets/metiers.</p>
FINAL OPERATIONAL SETUP	Actual mixed-fisheries advice for 2021 (reference year 2019)

STECF concludes that this roadmap will focus mainly on the Western Med in the first place. But, as it also the case in the ICES area, it should not be excluded to expand it to a more global mixed-fisheries approach for the EU Mediterranean demersal fisheries.

4.6 EWG 18-16 Stock assessments in the Mediterranean Sea 2018 - Part 2

Request to the STECF

The STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

The Mediterranean expert working group 18-16 met in Rome from 15 to 21 October 2018. 12 experts attended the meeting including two JRC experts, two STECF members and one observer. The stock assessments performed in EWG 17-15 and 18.16 should constitute the basis for the preparation of the demersal Adriatic EU MAP.

STECF comments

STECF invited an external reviewer to participate in the EWG, with the specific purpose of reviewing the hake assessment but also participating in the group discussion for all the stocks. STECF notes that the report contains a review of the hake assessment.

Overall STECF considers that the EWG addressed thoroughly all ToRs. A total of seven area/species combinations were evaluated.

Table 4.6.1. List of stocks assessed in the EWG 18-16.

Area	Common name	Scientific name
GSA 17-18 (see TOR 7)	Hake	<i>Merluccius merluccius</i>
GSA 17-18	Red mullet	<i>Mullus barbatus</i>
GSA 17-18	Norway lobster	<i>Nephrops norvegicus</i>
GSA 17-18-19	Deep-water shrimp rose	<i>Parapenaeus longirostris</i>
GSA 17-18	Common cuttlefish	<i>Sepia officinalis</i>
GSA 17	Sole	<i>Solea vulgaris</i>
GSA 17-18	Spottail mantis shrimp	<i>Squilla mantis</i>

The stock areas joining several GSAs have been proposed on the basis of STOCKMED and management needs. The EWG followed the area combination noted above and in giving catch options, but STECF has noted below where area combination may need additional consideration.

Overview

5 assessments were carried out using age-based methods including short term forecasts, one with a stochastic surplus production model in continuous-time (SPiCT) and other using both SPiCT and CMSY. The status of each stock in terms of spawning biomass and fishery exploitation was evaluated. Catch advice was provided based on applying an MSY approach and other catch options are made available in the summary sheets section 5 of the report.

The quality of the assessments produced was carefully reviewed by the experts, including the external reviewer, during the EWG. Some of the uncertainties and assumptions made by the EWG were further discussed by the STECF (see below). Overall, while STECF recognises that some uncertainty still remain regarding key biological parameters of e.g. growth and stock identity that would warrant further scientific investigations, the assessments presented by EWG 18-16 represent the best available estimates of the current status of the stocks. STECF notes furthermore that most of the stocks had been assessed in 2017 and the outcomes had been reviewed during the 2018 Spring Plenary meeting (PLEN 18-01). The present review in PLEN 18-03 builds therefore on the evaluations and comments agreed during the STECF 2018 Spring Plenary. The quality of each assessment and the methodological changes compared to Spring Plenary assessments are discussed below.

STECF considers that six of the seven assessments presented can be used to give advice on stock status, and are indicative of changes in F or catch. STECF notes that for sole in GSA 17 there are uncertainties in the age information, as discussed below. STECF recognises that all these assessments come from short data series and are therefore intrinsically uncertain, but considers overall that they provide a good guide to the magnitude of changes required to reach F_{MSY} in 2019.

STECF notes that the EWG has estimated and provided values of F_{MSY} and MSY ranges for all seven stocks. The values of F_{low} and F_{MSY} are regarded as reasonable estimates, are considered precautionary and may be used directly to give F_{MSY} advice as long as the stocks are above B_{pa} . However, the EWG has not been able to evaluate these ranges following the usual procedure as used by ICES. Therefore, STECF does not advise fishing at F greater than F_{MSY} for any stock, and notes that the advice for Norway lobster is for $F < F_{MSY}$ due to the low biomass $B < B_{pa}$.

A brief description of status of the assessed stocks and advice regarding the measures needed to reach F_{MSY} in 2019 are listed below. Overall, the assessments indicate that all stocks but one are significantly being overfished, but also that biomass is stable or increasing for all stocks.

- Hake in GSA 17 -18 is increasing but is being overfished. Catches should be reduced by at least 55% to reach F_{MSY} in 2019.
- Red Mullet in GSA 17-18 is increasing but is being overfished. Catches should be reduced by at least 10% to reach F_{MSY} in 2019.
- Norway Lobster in GSA 17-18 : is stable over the recent years but SSB is estimated to be below B_{pa} , F is above F_{msy} and F need to be reduced to below F_{MSY} in order to allow the stock to recover above B_{pa} . Corresponding catches should be reduced by at least 48% to reach $0.77 \cdot F_{MSY}$ in 2019.

- Deep water rose shrimp in GSA 17-18-19 is increasing but is being overfished. Catches should be reduced by at least 75% to reach F_{MSY} in 2019.
- Common Cuttlefish in GSA 17-18 is stable at B_{MSY} it is currently being under exploited relative to MSY . Common Cuttlefish is a short lived species and the catch advice for 2019 for this species depends almost completely on recruitment in 2018 which is unknown. The model assuming average recruitment estimates that catches may be doubled to reach F_{MSY} in 2019. If recruitment in 2018 differs from the average, catches should be modified accordingly.
- Sole in GSA 17 is stable but the stock is being overfished. Catches should be decreased at least 71% to reach F_{MSY} in 2019.
- Spotted mantis shrimp in GSA 17-18 is increasing and the stock is being overfished. Catches should be decreased at least 41% to reach F_{MSY} in 2019.

Statements on expected catch changes in relation to reaching F_{MSY} in 2019 are included in the following table:

The table includes all the attempted approaches and highlight in bold the final choices which were the basis of the advice

Table 4.6.2. Summary of analyses that were attempted and basis for advice (given in bold). A4A, XSA, and SS3 are age-based assessment methods; STF is a standard short-term projection with assumptions of status quo F in the intermediate year (2018) and recent historic recruitment for 2018 and 2019. SPiCT and CMSY are surplus production methods.

Area	Species	Previous Analysis / year	Attempted analyses and basis of advice (in bold)
GSA 17-18	Hake	a4a/SS3 2017 (not accepted)	SS3, a4a , STF
GSA 17-18	Red mullet	Index 2017	a4a , STF
GSA 17-18	Norway lobster	SPiCT 2017	a4a, SPiCT , STF
GSA 17-18-19	Deep-water rose shrimp	a4a XSA 2017	a4a , STF
GSA 17-18	Common cuttlefish	CMSY 2017	SPiCT, CMSY
GSA 17	Sole	a4a/SS3 2017 (not accepted)	a4a, SS3 , STF
GSA 17-18	Spottail mantis shrimp	a4a 2017	XSA, a4a STF

Table 4.6.3. Summary of advice from EWG 18-12 by area and species. F 2017 is terminal F in the assessment. Change in F is the difference as % change between targeted F in 2019 (F_{MSY}) and the estimated F in 2017. Change in catch is % change from catch estimated 2017 to projected catch 2019. Biomass status for Norway Lobster and Cuttlefish is based on B_{MSY} estimated in the surplus production models. Biomass status for all other stocks is given as an indication of trend over the last 3 years for stocks with time series analytical assessments or biomass indices. (^L indicated landing only, not catch).

Area	Species	Method/ basis	F 2017	F 2019	Change in F	Catch 2017	Catch 2019	Change in catch	Biomass (status)
GSA 17-18 (see TOR 7)	Hake	a4a	0.53	0.16	-70%	6035	2694	-55%	Increasing
GSA 17-18	Red mullet	a4a	0.48	0.41	-15%	5652	5083	-10%	Increasing
GSA 17-18	Norway lobster	SPiCT	0.66	0.35*	-47%	1430	745	-48%	0.43 B_{msy}
GSA 17-18-19	Deep-water rose shrimp	a4a	1.69	0.65	-62%	10408	2635	-75%	Increasing
GSA 17-18	Common cuttlefish	CMSY	0.5 F_{MSY}	$F=F_{MSY}$	101%	3774	7600	101%	At B_{msy}
GSA 17	Sole	SS3	0.65	0.24	-63%	2257	659	-71%	Stable
GSA 17-18	Spottail mantis shrimp	a4a	1.04	0.41	-61%	4672	2742	-41%	Increasing

* The exploitation rate for *Nephrops* GSA 17-18 is based on a reduced harvest rate due to the low biomass ($B < B_{pa}$) $F_{msy} = 0.45$ is reduced to $F = 0.35$

Data revision

STECF notes that the EWG received revised time series for the most recent years, regarding landings time series from Albania as reported to GFCM, and catch time series from Croatia.

In the case of Albania the new landings data for hake show a threefold increase in catch in the last 6 years over the previous 6 years and Albania now declares about 16% of the total Adriatic hake catch in comparison with 4% in the previous period. For Norway lobster Albanian catches were declared as zero prior to 2012, while over following period 2012-2017 they amounted on average 24% of the total Adriatic landings. For deepwater rose shrimp the declared landings for Albania have risen sixfold since 2012 and now constitute 33% of the total declared landings. This revision has minor influence on the perception of

the status of the stocks of hake and Norway lobster, but has a larger impact on the estimate of deep water rose shrimp biomass.

For Croatia the reported otter trawl discard rates of hake for last 4 years have been reduced, from around 10% to 0.2% of Croatian catch, this compares with around 3% discard rates for Italian otter trawl. Overall Croatian discards contribution has reduced from 1.4% to 0.03% of total catch. This change is likely negligible for overall perception of hake stock status but may give misleading impression of the selection at age or length in the fishery.

STECF understands that these revisions in Croatian discard data seem to be associated with a change in data sources, where discard estimates now come from the information directly reported by fishers in the log-books. STECF considers that this methodology is likely flawed, unless it can be proven with independent sources that discards are reliably estimated and declared in logbooks. These estimates should thus be corroborated by discard observations from at-sea monitoring programs, such as last haul program, on board sampling or electronic monitoring. STECF notes also that according to most recent Work Program and Annual Report from Croatia evaluated by EWG 18-18, discard sampling is still ongoing in this Member State, so further clarification on the reliability of the discard estimation should be sought.

STECF comments that in the view of these large changes and revisions of the most recent data years, the overall reliability of the early part of the time series of catches for the stocks concerned should be assessed.

Specific comments by stock

For hake in GSA 17-18, STECF noted in 2018 Spring Plenary F noted that, *"based on results of both models STECF is able to conclude that F is high, greater than F_{MSY} and that catches need to be reduced by a half as a minimum to achieve F_{MSY} in 2019. STECF is not able to advise on the current state of biomass for this stock"*. STECF PLEN 18-01 recognised the need to improve this stock assessment. STECF thus organised external review to help develop models for this stock in EWG 18-16. STECF highly appreciates the extra model exploration in the EWG dedicated to the assessment of Mediterranean hake (*Merluccius merluccius*) in GSA 17-18 and more specifically the development of an assessment based on Stock Synthesis (SS3). Substantial progress has been achieved during EWG 18-16 and SS3 estimates of biomass and fishing mortality for the most recent data year (2017) are similar to the a4a estimates. The historic differences are also small, with SS3 showing a slightly greater decline in stock over the time series. However, the SS3 model is less stable and the EWG suggested that a4a is the preferred model for advice. After considering the comments from the external review, STECF endorses this choice. STECF notes additionally that SS3 model allows separate modelling of fleets, whereas a4a uses a single combined fishery fleet. However, STECF notes that both modelling approaches can be used to derive partial fishing mortality by fleet if required for the development of multiannual plans, and considers both models could be considered for the development of management strategies evaluation (MSEs).

For red mullet in GSA 17-18, STECF 2018 Spring Plenary gave a catch advice based on a harvest rate informed by a biomass index. EWG 18-16 presented an improved, more stable assessment for this stock. STECF PLEN 18-03 considers that this assessment can be used to provide an estimate of F status relative to F_{MSY} and corresponding catch options for the whole area. STECF notes however that there is some information to suggest that red mullet may have more than one stock unit in the combined area, and the assessment provides thus an average exploitation rate valid for the whole unit. Care should be taken to ensure parts of the area are not overfished. Differences in biomass trends across the area may be monitored with indices from MEDITS survey.

For Norway lobster in GSA 17-18, STECF 2018 Spring Plenary gave advice based on a single area surplus production model. STECF has used the same methodology again this year to give advice, with the short term forecast carried out using the same assumptions as those agreed in PLEN 18-01. This updated assessment is coherent with last year's assessment, despite the revision of Albanian data, and is therefore considered suitable for overall evaluation of F and SSB and a short term forecast for 2019. STECF also note that the short term forecast catch option is based on a reduced fishing mortality ($F < F_{MSY}$) due to low biomass ($B < B_{pa}$). STECF considers that this reduction is required to rebuild the stock above B_{pa} and towards B_{MSY} .

STECF also notes that Norway lobster is known to grow differently in different parts of the Adriatic, and there may be potential for local depletion. Specific measures have already been put in place to restrict fishing in areas of perceived greater vulnerability. STECF considers that these area restrictions make a helpful contribution for protecting the more vulnerable areas. However, STECF underlines that area restriction is not a substitute for the overall reduction in fishing mortality advised, if overall catches do not decrease. STECF notes additionally that the EWG 18-16 carried out a series of sensitivity tests for the different growth rates observed in different parts of the Adriatic. STECF considers that while these tests are helpful to understand the sensitivity of the assessment to alternative assumptions on growth, they do not provide an assessment of stock status within the different parts of the area, as they are not based on catch from the different parts of the area.

For deep water rose shrimp in GSA 17-18-19 the update assessment performed by EWG 18-16 gives a similar perception of the stock in recent years compared to the assessment agreed in Spring Plenary. Additionally the new assessment has been extended back in time. The added early period should however be treated with caution. The fluctuations seen in the first few years are driven by intermittent observations of specific year classes. It has not been possible to validate the detail of these observations. The catch data in the most recent years is of higher quality and reliability, and is suitable to evaluate the status of the stock in recent years.

For common cuttlefish in GSA 17-18 STECF did not give advice in Spring Plenary. While it appears possible from the EWG 18-16 assessment to estimate the state of the stock on the basis of the improved time series of catch data, STECF notes that it is not possible to give specific catch advice for 2019, due to the short lived nature of this species. STECF has therefore provided an advice for 2019 based on average estimate of catch.

For sole in GSA 17 STECF 2018 Spring Plenary 'discussed the various hypotheses and evidences underpinning the various models, and noted that this might be further analysed by STECF 18-16. Although no unanimous conclusion could be reached by the committee, it is suggested that unless new conclusions are reached by EWG 18-16, the intermediate SS3 model (SS3 Run7 section 6.8.3) with intermediate levels of cryptic biomass (around 15% of adult biomass not accessible to the fishery) is used as the main basis for MAP analyses in STECF 18-17'. The EWG 18-16 has noted the deficiencies in aging sole, and has evaluated an alternative length slicing approach. STECF considers however that this length slicing approach needs further evaluation and development. Therefore, STECF PLEN 18-03 suggests again, as during Spring Plenary, that the SS3 model (now updated with 2017 data and reported in EWG 18-16 Section 6.6.3.1) is used as the main basis for MAP analyses in STECF 18-17. STECF anticipates that once ageing issues have been resolved, further updates of input data will be available for this assessment and at that point the assessment should be updated.

For spottail mantis shrimp in GSA 17-18 STECF notes that the current assessment is an update of the assessment that was used by STECF Spring Plenary to give information on F status and catch options, with the only addition of 2017 data. The updated model is on the same basis and is giving similar results in terms of F and SSB as presented in PLEN 18-01.

STECF therefore considers that this updated assessment should be used to give catch options for 2019.

Additional comments

During the STECF Plenary 18-03 meeting, an STECF member has provided a summary of potential issues for the EWG 18-16 assessments. These issues have been discussed among the EWG 18-16 experts after the STECF plenary, but before the publication of the final EWG 18-16 and PLEN 18-03 reports. The comments have been included as Annex A to the EWG report, together with the following EWG 18-16 response. Where immediately possible the issues been dealt with by improvement to the draft text of EWG report and revisions to Tables and Figures, so that the comments are directly reflected in the final published version of the EWG 18-16 report. In other cases where further exploration is required, outside the scope of the current EWG, this aspect has been highlighted in the Annex A. The corrections brought to the EWG 18-16 assessment compared to the draft version reviewed by the PLEN 18-03 are minor: an error in stock weights has been found for Deep water rose shrimp in GSA 17 and 18, but these do not no change the catch advice or the stock status. For sole in GSA 7 minor corrections have been made to total catch in both SS3 and a4a assessments. This change slightly revised the assessment but have not substantively affected the outcomes of STECF PLEN 18-03 comments and conclusions. The a4a assessment has been revised due to revisions in natural mortality and maturity at age. The report has been revised, but as this assessment is not used by STECF for advice, the changes have no impact on STECF advice.

STECF notes that data quality deficiencies and recommendations for further research studies and data collection have been comprehensively addressed by the EWG for each stock in section 7 of the report. Due to the shortness of the time series, it has not been possible to carry out full evaluations of MSY ranges. The EWG 18-16 has thus provided simple MSY ranges based on a regression approach for the stocks considered.

The Italian MEDITS surveys in both GSA 17 and 18 were performed in a later period than the usual one (Spring) in several years, and especially in 2017. This issue has been extensively discussed by EWG 18-16, STECF considers that it is fundamental to respect the timing protocols for conducting trawl surveys. Differences in survey timing may produce misleading signals on abundance and age composition of the stock, which cannot be easily corrected and accounted for in the stock assessment model. Changing survey periods may have an adverse effect on the quality of survey data used as tuning index and increased the uncertainty in abundance indices and distribution patterns data series. The failure to comply with agreed timing protocols for surveys necessarily results in recognition of a failure to carry out a mandated task. STECF endorses the EWG considerations and has conveyed them to DG Mare and RCGs via inclusion in the sections 5.1 and 5.2 of this plenary 18-03 report.

Finally, STECF notes that some conceptual analyses have been carried out by the EWG regarding the suitability of the use of combined indexes of surveys carried out in different areas /countries /seasons (section 2 of the EWG report). For some areas and stocks, multiple surveys covering several GSAs are used as separate tuning indices for stocks distributed over several GSA. The analyses carried out by the EWG shows that it is always better to use a combined index rather than separate indices, since the combined index is less sensitive to the effects of movement (differences in distribution) before the surveys start, and ensures that the weighting of the multiple survey information in the model is dealt with consistently.

STECF conclusions

STECF acknowledges that the EWG was able to address all the terms of reference completing the evaluations of all GSA/species combinations requested, and to provide catch advice for 2019.

STECF acknowledges that important improvements have been made regarding the assessment of the stocks.

Overall, while STECF recognises that some key biological parameters of e.g. growth and stock identity would warrant further scientific investigations, the assessment are robust to several sources of uncertainty and the status of the overall perception is that stocks are overexploited

4.7 EWG18-18 Evaluation of Work Plans & Data Transmission failures

Request to the STECF

The STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

The EWG 18-18 met in Bremerhaven from 5 to 9 November 2018 to evaluate national Work Plan (WP) amendments submitted by Member States for 2019. A numbers of ToRs were subsequently added for the EWG. The EWG was asked to further evaluate Data Transmission issues (DT issues) flagged in 2018 and to elaborate on potential improvements to the current processes for the evaluation of DT issues. The EWG 18-18 was further asked to work on the revision of the Annual Report (AR) evaluation template and AR submission guidance, to brainstorm on the revision of the Union Multi-annual Programme for Data Collection (EU-MAP) and to evaluate the resubmitted 2017 AR of Romania, Czech Republic and Slovakia. STECF notes that this was a substantial increase in the work-load compared to the original agenda.

Since the meeting took place the week before STECF PLEN 18-03, the EWG report was not yet available to PLEN 18-03. The following STECF opinion and recommendations are consequently based on the presentation of outcomes from the EWG 18-18 meeting made by the chairperson and subsequent discussion among members during the STECF plenary meeting 18-03.

Evaluation of Member States' amendments of Work Plans

STECF notes that the EWG-18-18 was provided with the WP tables and text of 16 Member States, documents explaining the amendments to the WPs and access to supporting information, such as relevant EWG reports (from EWG 16-16, 17-04, 17-07 and 17-17), ad-hoc expert reports on WP evaluation criteria, relevant ICES reports and the latest Liaison Meeting report.

STECF observes that in order to be consistent with the evaluation of WPs carried out in the previous years, the same evaluation criteria and procedures were used this year for evaluation.

STECF observes that for 6 Member States, the amendments were found satisfactory by the EWG. The remaining 10 MS were contacted by the Commission during the EWG with the aim to solve the issues raised by the EWG before the end of the meeting. For 5 of these, the issues could be solved. For the remaining 5, there were still outstanding (although mostly minor) issues at the end of the EWG.

STECF notes that Member States undertook significant efforts to address previous STECF concerns and to adapt their Work Plans to e.g. changes in fleet structures or to new end-users data needs. Several of the shortcomings identified in the evaluation process were of a more formal nature, such as for instance incomplete descriptions, inconsistencies between tables etc. Most of these issues could be solved during the EWG by correspondence between DG MARE and the Member States.

STECF further notes that the EWG 18-18 developed a template for future submissions of Work Plan amendments to be sent by the Commission to Member States, requesting (i) a table listing the WP changes, clearly identifying where changes occur, supported by a justification, (ii) a Word document with tracked changes as well as Excel tables with changes marked in red, and (iii) 'clean' versions of the revised WP where changes should be accepted / removed. This would significantly facilitate the work of the EWG and reduce the otherwise time consuming process of locating the changes before the review process could be initiated.

Annual Report guidance and evaluation

Two new templates have been introduced in 2018: a draft template for the AR itself (including a guidance document), and a template for its evaluation. The first template was used by Member states before submission of the 2018 ARs in May 2018. This AR template including guidance for submission was afterwards published in August 2018 (Commission Implementing Decision (EU) 2018/1283). The second template for the evaluation of ARs was used by EWG 18-10 in June 2018 for the first time.

The EWG 18-18 was asked to review this AR evaluation template. Additionally, since the AR template including guidance for submission has already been published, the EWG was also asked to further develop a non-legal 'Questions & Answers' document initiated by the Commission for the submission of the Annual Reports. STECF notes that the 'Questions & Answers' document provide more user-friendly guidance to Member States with regard to submission of ARs. Moreover, the AR evaluation sheet was amended to ensure an efficient STECF evaluation procedure.

Romanian, Czech and Slovakian 2017 Annual Reports

STECF observes that the Romanian, Czech and Slovakian 2017 AR were re-submitted to the Commission after EWG 18-10 in June and the EWG 18-18 was asked to re-evaluate these ARs.

STECF notes that the ARs of the Czech Republic and Slovakia were both submitted for the first time in 2018 (reference year 2017). The AR of the Czech Republic addresses only economic data collection in aquaculture, whilst the AR of Slovakia addresses only economic data collection in both aquaculture and processing industry. The evaluation of these ARs by EWG 18-18 concluded that the AR of the Czech Republic was satisfactory, and that only very minor issues remain to be addressed for Slovakia. Conversely, STECF notes that EWG 18-18 considered that issues remain with the Romanian AR, and that the Romanian WP will have to be re-submitted to allow efficient comparisons with the AR.

Improvement in the evaluation of Data Transmission issues

STECF notes that PLEN 18-02, when reviewing the EWG 18-10 report, pointed out that the evaluation of Data Transmission issues (DT issues) made significant progress in the last years, but still requires work, predominantly on the end-users side but also during the evaluation.

Following the discussions at PLEN 18-02, the DTMT platform (Data Transmission Monitoring Tool, <https://datacollection.jrc.ec.europa.eu/web/dcf/compliance>) for reporting DT issues by end-users was further developed and a guidance document for end-users was drafted. The document was used as background for the discussion at the EWG 18-18.

STECF notes that for the first time and in line with STECF suggestions aiming at 'real-time' monitoring of DT issues, DT issues from 2018 data calls, and evaluated by several STECF EWGs, were uploaded on the DTMT platform to be assessed during the same year. STECF notes, however, that the EWG 18-18 faced a lack of time to go through all the DT issues in detail and focused instead on the improvement of procedures for the evaluation of DT issues.

In order to ensure that the evaluation of the DT issues are carried out in a timely manner, the EWG 18-18 had proposed to evaluate the DT issues identified during the 1st half of the year during the November EWG meeting and the issues identified during the 2nd half of the year during the June EWG meeting. STECF suggests an alternative option, where the DT issues identified between November (year Y) and June (Year Y+1) be dealt with in the EWG on evaluation of ARs in June (Y+1) and between July (Y+1) and November (Y+1) be dealt with in the EWG on evaluation of WPs in November (Y+1). This has the advantage that ARs evaluated in June and the fleet economic data call issues relate to the same data collection year.

EU-MAP revision

STECF observes that the current EU-MAP was published in 2016 and implemented for 2017-2019. Various fora (including for instance RCGs, PGECON, end-users) have recommended amendments. An ad-hoc contract was awarded by DG MARE to collate these recommendations, and the results of this contract work were presented to the EWG. The EWG 18-18 formulated questions for the consultation of RCGs and PGECON regarding the need to revise text and tables of the EU-MAP. STECF supports this process.

STECF conclusions

The following STECF conclusions are based on the outcomes of the EWG 18-18 presented by the chairperson during the STECF PLEN 18-03 and a preliminary draft of the EWG report; the final EWG report was not yet available at the time of writing.

STECF reiterates its previous conclusion from PLEN 18-02 that the most important element in evaluating Member States' performance is whether the data has been transmitted and is of sufficient use to the end-users. It is therefore of paramount importance that end users are entering DT issues in the DTMT tool in a coherent manner and that these are being evaluated in a timely and objective manner.

STECF notes that some progress to improve the current evaluation process of DT issues, WPs and ARs have been made through the drafting of guidance document for end-users for reporting DT issues and by improving the evaluation template for ARs and 'Questions and Answers' document regarding ARs, during the EWG. Also, STECF notes that a meeting is planned to discuss DT issues as regards the Mediterranean and Black Sea, in January 2019. However, STECF notes that further improvements as described below, are needed to ensure an efficient and objective evaluation process.

With regard to DT issues, STECF concludes that the guidance document for end-users drafted by JRC is a step forward and will provide useful guidance to end-users on how to use the DTMT tool as well as how to rank DT issues. STECF suggests that the guidance document should be further developed during the next STECF EWG on evaluation of ARs in 2019. At the same time, the DTMT itself needs to be reviewed and subsequently amended by the JRC developers to provide a tool that meets the requirements of all parties concerned with data transmission issues.

STECF further reiterates its advice from PLEN 18-02 that the step of consultation between end users and Member States before reporting the DT issue in the DTMT is currently not

fully efficient for all data calls, as seen from the high number of DT issues reported in some of those. Increased consultation between Member States and end users after the completion of the working group and before the reporting of data failures should help decrease the high number of issues considered 'unsatisfactory' which are then flagged to DG MARE. STECF concludes that a scoping meeting of key stakeholders from all regions and including members from STECF plenary, RCGs, DG MARE, JRC and Member States is needed to discuss how to improve the current process of assessing the DT issues. Alternatively, the Liaison meeting or DG MARE DCF coordination meetings with national correspondents could be used as a platform to start the discussions.

As regards the evaluation of ARs, WPs and DT issues, STECF reiterates its conclusion from PLEN 18-02 that there is a need to adopt a more consistent and less subjective approach to evaluating ARs, WPs and DT issues and suggests that in addition to the existing guidelines for evaluators, a separate stand-alone document containing a comprehensive list of assessment criteria for both ARs and DT issues should be prepared ahead of the 2019 evaluation of Member States ARs. Such a document is intended to be a tool to enhance efficiency and objectivity and not to have any legal status. STECF notes that an ad-hoc contract of experts in the field could possibly address this issue.

STECF notes that the terms of reference for the EWGs dealing with the evaluation of WPs and ARs have increased continuously over time which has resulted in less time for experts to assess the AR, WPs and DT issues as well as for ensuring consistency in the assessment results by plenary discussions. For this reason, STECF concludes that additional ToRs for these meetings should be minimised as far as possible so that more time can be given to the evaluation.

4.8 EWG 18-19 Economic Report of the EU Aquaculture sector

Request to the STECF

The STECF is requested to review the report of the STECF Expert Working Group meeting, evaluate the findings and make any appropriate comments and recommendations.

STECF observations

Following the latest call for economic data on the EU aquaculture, EWG 18-19 was requested to analyse and comment on the economic performance of the EU and national aquaculture sectors between 2008 and 2016. The EWG met in Ispra, Italy, from 22-26 October 2018, and was attended by a group of aquaculture economic experts consisting of 27 experts from 19 countries and 3 JRC experts. In addition, 1 country provided advice on their national chapters by correspondence.

The 2018 Economic Report of the EU Aquaculture Sector is the sixth report of its kind, providing a comprehensive overview of the latest information available on the production, economic value, structure and competitive performance of the aquaculture sector at the national and EU level for the years 2008 to 2016.

Overall, the performance of the aquaculture sector is improving. The EU aquaculture sector reached 1.4 million tonnes in sales volume and €4.9 billion in sales value in 2016. This corresponds to an increase of 6% in sales volume and 8% in the sales value compared to 2014. The economic performance of the EU aquaculture sector has been improving on almost all economic indicators in 2016 compared to 2014 and 2015. This positive economic development is seen for all the three sub-segments: marine fishes, freshwater fishes and shellfish, which are all providing positive economic growth and generating positive profits.

This year a special effort was made to provide time trends for the data collection period 2008-2016. The totals and the time trends presented in chapter 2 of the report are based on the data collected under EUMAP. When data were missing, the EWG estimated plausible values based on EUROSTAT and FAO data. This enabled a comprehensive overview of the EU aquaculture sector.

This report includes two special chapters. Chapter 5 provides an assessment of the implementation of actions and measures for the promotion of aquaculture through a cooperation process based on multiannual strategic plans to be developed by the Member States. The EWG concluded that all EU countries have ongoing actions in one or all the strategic pillars, but only few countries have already overcome or are close to achieve the production goals stated in their Strategic Plans. In many cases the evolution in production can be better explained by factors outside the strategic plan actions, such as adverse environmental conditions. Furthermore, the projections included in the strategic plans might have been overoptimistic. In spite of this, the STECF supports the EWG's view that the design and implementation of the Multiannual Strategic Plans for aquaculture sector is a step forward for the modern EU aquaculture and contributes to the coordination of the different stakeholders across countries towards a common goal and strategy.

Chapter 6 provides an overview of the consequences of the change in data collection over time, highlighting potential differences between previous and new EU Multi-Annual Programs (EU MAP). In principle, data submitted for the aquaculture data call is now based on data collected according to the national Working Plans for 2017, which should follow the new EU MAP regulation. STECF observes however that the continuity of data collected

under old and new Commission Decisions is not aligned (the new EUMAP substantially changed the segmentation of the aquaculture sector and introduced a minimum threshold of production for data collection). Not all Member States used the same segmentation, and the minimum threshold implied that the fewer countries reported data, resulting in data gaps: 5 MS provided data in the format requested under EUMAP, 3 MS provided data in both formats, 3 MS did not deliver data due to the new threshold implemented under the EUMAP and 5 MS are land locked and hence not included in the DCF/EUMAP. 3MS did not report on their freshwater activities and 3 countries only reported part of their production, perhaps as a result of the newly introduced minimal threshold of production.

A special effort was thus made by the EWG to correct for the changes in data collection, in order to provide reliable time series and time trends from 2008 to 2016. Nevertheless, STECF observes that data gaps relates primarily to the freshwater sector for which reporting is not mandatory. STECF observes thus that this situation may result in a bias in the analysis of this sector and hence influence the conclusions on sector level characteristics.

Beside this, STECF notes that the overall quality of the data reported has remained stable over time.

STECF conclusions

STECF concludes that the report provides a good and reliable overview of the economic performance of the EU aquaculture sector. However the reduction of MS reporting represents a deterioration in terms of data coverage compared to previous reports.

STECF concludes that taking into account time and resources available, the EWG analysis produced is of substantial standard, including actions to correct for differences in data formats and segmentation across Member States.

STECF concludes that in the future, the linkages across operational actions foreseen in Multiannual Strategic Plans for aquaculture, production goals and assessment indicators should be better aligned and specified.

In order to optimise the work of the EWG, STECF suggests that a scoping meeting is planned prior to the next data call for aquaculture. During this meeting the EWG chair, DG MARE and JRC can set a time schedule for the meeting and a deadline for data submission, prepare a division of tasks on data handling, can agree on reporting formats and evaluate the latest version of the report.

5. ADDITIONAL REQUESTS SUBMITTED TO THE STECF PLENARY BY THE COMMISSION

5.1 Recommendations of the Regional Coordination Groups

Background provided by the Commission

The Liaison meeting took place on 1st and 2nd of October 2018. Recommendations of the Regional Coordination Groups and the Planning Group for Economics (PGECON) were put forward.

Request to the STECF

STECF is requested to analyse the recommendations of the RCGs and PGECON in the light of their possible impact on the scientific advice process (stock assessment, annual economic report, management measures assessment) and to inform the Commission on the possible effect of the recommendations on the data coverage, quality and availability.

STECF observations and comments

STECF observes that the Liaison Meeting is the meeting of all Regional Coordination Groups (RCGs), PGECON, end-users and the Commission where the results and recommendations of each RCG and PGECON are presented and discussed in order to coordinate data collection at EU level. This is the second year that STECF have been requested to analyse the recommendations of the RCGs and PGECON and provide comments to the Commission.

Regional Databases and Estimation Systems

STECF observes that in all main fishing regions covered by RCGs and for which the recommendations were available (North Sea and Eastern Arctic (NSEA), North Atlantic (NA), Baltic and Mediterranean and Black Sea (Med&BS)), regional databases are under development. In the latest development phase of the RDBES (Regional Database and Estimation System) for RCG NSEA, RCG NA and RCG Baltic statistical sampling information and statistical estimations will be stored in addition to the databases functionality. The RDBES will:

- support the Regional Coordination Groups with relevant sampling data for coordination;
- raise data quality by using common quality checks across all countries' data;
- ensure that only approved standardised statistical methods are used for estimating data

It is important that the RDBES have only approved estimation methods and it is transparent regarding the processing and estimation of data.

General Data Protection Regulation

STECF observes that with the introduction of the new General Data Protection Regulation (GDPR) in May 2018, there are strong concerns about the stipulation that Personal data can only be retained for 5 years. However under the GDPR, there are allowable derogations from the normal Data Subject rights when data is used for scientific purposes. The RCGs for the North Sea and Eastern Arctic, North Atlantic and Baltic recommended that the draft Control Regulation is reviewed and amended where required to allow retention of personal data for more than 5 years for scientific purposes, in order to fulfil data requirements under the DCF. It is also considered by the RCGs that the proposed full anonymization of VMS and log book data after 5 years will heavily restrict the utility of this data for the purposes of scientific analyses. Furthermore, STECF notes that it is not clear how the GDPR will affect the data collection programs implemented in the various Member States (e.g. links between economic and social surveys to the fleet register and logbook data). There might thus be a need for an harmonised approach to GDPR interpretation across Member States, including decisions on how to maintain the integrity of time series to be taken within the DCF community.

Recreational fisheries data collection

STECF observes that there are several RCG recommendations related to the recreational fisheries data collection and use:

- The RCG NA recommends that marine recreational fisheries surveys collect data on all species caught rather than only the species defined in the DCF;
- The RCG NA recommends that the importance of recreational fisheries removals is reviewed and included in stock assessments where recreational catches are found to be substantial;
- RCG MED&BS recommends the organization of an ad-hoc workshop on recreational fisheries and recalls the work under implementation by GFCM on recreational fisheries and the handbook on data collection methodologies that will be finalized next year;
- RCG NA also recommends STECF to consider a workshop in September 2020 to review the impact of recreational fisheries based on the outcomes from pilot studies. A data call would be needed in advance of this workshop.

STECF also notes that the provision of a limited amount of data on recreational fisheries is already part of the economic data call, which would need to be updated in order to accommodate with the development of the data collection methodologies for recreational fisheries.

Economic data call

STECF observes that PGECON recommended a workshop (Athens, 19-22 November 2018) to review the economic data call and to propose an appropriate reporting structure for social data to be included in the data call. The results of the workshop will have an impact on the fleet economic data call and the STECF EWG on the AER in 2019.

STECF observes that PGECON recommended implementing a voluntary threshold for the distinction between active and less active vessels in the data call for economic data and the reporting of the AER. This threshold is aimed at improving the quality of the reported data and might be implemented by MS on a voluntary basis.

Inclusion of new shark species in the future EUMAP

STECF observes that the Liaison Meeting recommended inclusion of Shortfin mako shark and Porbeagle to Table 1C of the EU-MAP for the tuna RFMO areas.

Participation of STECF experts to other groups

STECF reviewed the proposed changes to the rules of procedure (RoPs) for the Mediterranean and Black Sea RCG. STECF considers that these were largely complete but notes that an agreement is still necessary on one paragraph (para. 3.10) relating to delegated rights. The proposed amendment to paragraph 4.3 states *"When a group is mandated to prepare a draft regional work plan in accordance with the Article 9 of Regulation (EU) 2017/1004, relevant Member States shall appoint expert(s) with the necessary expertise related to that draft regional work plan to participate in the group's work. NCs and the European Commission may participate the group's work at all stages. ICCAT, GFCM and STECF may be invited to participate at any stage."*

Paragraph 4.4. states *"The ICCAT, GFCM and the STECF should be empowered to actively participate during meetings and discussions pertaining to the RCG and any of its subgroups, proposing new terms of reference and additional items on the agenda, with the only restriction being not able to cast a vote when decisions are to be taken"* and paragraph 8.4 inter alia *"the representatives of the STECF, General Fisheries Commission for the Mediterranean (GFCM) and International Commission for the Conservation of Atlantic Tunas (ICCAT) have a permanent possibility to participate at all RCG meetings. They should be empowered to actively participate during meetings and discussions pertaining to the RCG and any of its subgroups, proposing new terms of reference and additional items on the agenda, with the only restriction being not able to cast a vote when decisions are to be taken."*

STECF notes that if representatives of the STECF are to be involved in Mediterranean and Black Sea RCG meetings and working groups, consideration needs to be given by the Commission as to whether the terms of participation as foreseen by the RCG is in line with the Commission Decision on the STECF (2016/C 74/05).

Timing of surveys (Recommendation from 2017)

In addition to the recommendations addressed by the RCGs in 2018, and taking into account the importance of the issue and its influence on the scientific advice produced by the EWGs (see also comments under ToR 5.2 and comments in EWG 18-16), STECF wants to draw the attention on the RCG MED&BS 2017 Recommendation 3 that relates to the MEDITS survey, which is used extensively in STECF and GFCM stock assessments. The RCG recommendation stipulated that: *"RCG recommends Mediterranean MS to carry out the MEDIT survey according to EUMAP provisions. In case of delays due to the MS administrative and bureaucratic procedures implementation, RCG recommends MS to take any actions to perform the MEDIT survey even with a delay with respect to EUMAP provisions. RCG recommends that this also applies to other research surveys at sea. RCG consider that from the scientific point of view it is better to perform the delayed surveys rather to not perform it at all, even if this involves a delay"*.

STECF notes that there are several surveys (MEDITS, MEDIAS and SOLEMON) that are used for stock assessment by STECF and GFCM Mediterranean stock assessment EWGs annually. These surveys provide very important data for these stock assessments. In STECF Plenary Report 17-03 STECF noted that it *"supports this recommendation and underlines the importance of fisheries-independent data to perform unbiased stock assessment. Ensuring the continuity of the survey time series is essential to monitor trends*

in biomass". STECF would like to reinforce the recommendation that these surveys should be carried out according to the agreed timing to ensure continuity. However, STECF is concerned that the recommendation from RCGMBS may be interpreted as misleading guidance for the situation where the survey is substantially delayed. The STECF considers that this aspect of the recommendation is problematic in two ways:

- The STECF considers it is not true to suggest that it is always possible to correct the effect of delayed surveys through modelling, because it is not possible to distinguish between true changes in the population from changes in the survey. While correction factors might be possible to estimate in some cases, it would usually not be the case for most assessments (see EWG 18-16 section 2.5 and ToR 5.2 of this report). The issue is that if a late or misplaced survey results in an unexpected value it is usually not possible to determine if the new value is indeed a true reflection of the situation or the result of the failure to follow the agreed program. So the effect of a delayed survey is that only 'expected' values (close to average) become valid and only surveys estimates that can confirm the previous view of the stock are trusted. In such situations one can question the real value of the data from a delayed survey. In particular, the information on recruitment is strongly sensitive to correct protocols being followed for surveys and cannot be corrected for survey timing delays within the assessment models if no other information is available.
- The STECF considers that statement that "*it is better to perform the delayed surveys rather to not perform it at all*" conveys the wrong incentive for the MS and carries a risk that delayed surveys become common practice, particularly if it is accompanied with no indication that the data is degraded in important ways. Such an approach directly enables non-compliance with the program. The STECF considers that this message is potentially damaging; and it needs to be clear that failure to comply with agreed timing protocols for surveys should necessarily result in recognition of a failure to carry out a mandated task and the Commission should consider if this should have consequences. However, the STECF also noted that if survey is planned and started in accordance with agreed timing protocol, but finished with short delay this should not be regarded as a failure.

STECF conclusions

Regional Databases and Estimation Systems

STECF supports and agrees with the common approaches developed at RCGs creating regional databases. It is expected that regional databases and their validation systems will also contribute to the improvement of data consistency provided to the Commission during STECF data calls.

General Data Protection Regulation

STECF concludes that time series of longer than five years are required for analysis and the provision of scientific advice to support the CFP. The changes in General Data Protection Regulation (GDPR) introduced in 2018 could affect EU fisheries data collection. STECF suggests that the Commission seeks legal advice on the impacts of the GDPR on the implementation of the EUMAP and take steps to review and amend the draft Control Regulation where required. All necessary steps should be taken to avoid losing the time series.

Revision of EUMAP

STECF concludes that during revision of the EUMAP, the following should be considered by the Commission and relevant EWGs:

- Shortfin mako shark and Porbeagle to be included in the Table 1C for the tuna RFMOs;
- Extension of recreational surveys to the full list of marine species (only for the regions which RCGs proposed this approach); for the MED&BS the EUMAP should consider the regional proposal that will be based on the analysis of pilot studies that will be carried out in the forthcoming workshop on recreational fisheries;
- Influence of the GDPR on the data collection and time series.

Recreational fisheries data collection

STECF concludes that provision of recreational data within the fleet economic data call (weight of catch for a limited number of species) did not contribute to the data analysis to a sufficient degree and was not used in the last Annual Economic Reports. Therefore, STECF suggests removal of this data provision from the fleet economic data call and add the recreational data set to the FDI data call where all landings and unwanted catches are reported. This change should be implemented before the workshop proposed by RCG NA in September 2020. Recreational data request should be coordinated with provisions of relevant RCGs.

Economic data call

STECF concludes that the introduction of a voluntary reporting threshold to separate less active and more active fleets, proposed by PGECON, might improve data analysis produced by STECF EWG on the Annual Economic Report. The definition of the threshold should however be the same for all MS to ensure comparison across MS and fleet segments.

STECF concludes that practical implications of the use of the reporting threshold in the fleet economic data call should be also discussed during the workshop in Athens (19-22 November 2018).

Participation of STECF experts to other groups

STECF suggests that in advance to each STECF plenary, the Commission prepares a list of planned meetings where STECF representation as an end user is needed. So the responsible Committee members could be appointed and discussed during the plenary in order to ensure representation of STECF as an end user in RCGs meetings.

Timing of surveys

The STECF concludes that Mediterranean surveys should be carried out according to the agreed protocols and delaying surveys should not become common practice.

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5.2 STECF end user feedback regarding the use of survey data in the scientific advisory process

Background provided by the Commission

The STECF EWG 18-04 on the 'Preparation for the evaluation of the list of mandatory research surveys at sea' took place in Varese, Italy, between 14 and 18 May 2018. The EWG 18-04 was tasked to develop the methodology to be used for the future evaluation of surveys. The main outcomes of this meeting were the following: two database-like tables, entitled 'stock' table and 'survey' table, that have to be populated by end users, MSs and RCGs. The information contained in the 'stock' and 'survey' tables will feed into the evaluation process, which is schematically represented by a flow chart entitled 'Decision Support Tool (DST)'. Each proposed survey will be assessed against all the stocks covered. The analysis per stock will help evaluate, not only how many stocks are sampled in a survey, but also the extent of coverage and the methodology used per stock. This will provide an indication of duplication between surveys (to be avoided) against the degree of complementarity (to be allowed).

The Member States (MSs) and Regional Coordination Groups (RCGs) have been already requested to populate the two tables ('stocks' and 'surveys' tables) with a proposed list of surveys, to be included in the new DCF legal framework. The end users are requested to provide their contribution on the use of survey data. A detailed account on the discussions that took place during the STECF EWG 18-04, regarding the objective evaluation of the 'importance' of a survey to any given stock assessment, can be found in pages 20-21 of the report.

Request to the STECF

The STECF's contribution, as an end user, is herewith requested, to assess to what extent survey data meets specific stock assessment needs. The following information is needed:

- survey data currently used in stock assessment
- data issues with the abovementioned data
- possible gaps that need to be covered in the future by fisheries-independent data

The STECF is requested to use as a basis the 'stock' and 'survey' tables, which have been filled in by the MS and RCGs. If deemed necessary, a stand-alone document can also be provided.

STECF observations

STECF highlights that this request deals with STECF as an end user of surveys, which is only the case for the Mediterranean and Black Sea (BS) stock assessment. Therefore, the STECF answer does not address surveys in the Northeast Atlantic. Nevertheless, a number of methodological observations are of generic nature and would apply to other surveys equally.

STECF examined an excel file containing the "Stocks database" and the "Survey database" provided by the EWG 18-04, filled in by the Mediterranean and Black Sea Member States (Greece, Malta, Croatia, Slovenia, Italy, France, Spain, Bulgaria, Romania) for their respective Med & BS surveys.

Stocks database

With regards to the Stocks database, STECF notes the following:

- There were differences in the way/extent that different Member States filled the Stocks Table. STECF notes that the instructions provided by STECF EWG 18-04 (see EWG report, Table 1) were not followed carefully. This is especially true for French data in the GSAs 7 and 8, for which only the "Stock" and "Survey" columns were filled.

- There were some double entries for certain Italian stock/GSA combinations (e.g. SOL in GSA 17).

- The "Advice input" column, when filled, did not contain the correct information (input data identified on reports of STECF-EWGs on Mediterranean and Black Sea stock assessments, GFCM Assessment Form of the WGSAD and WGSASP, or similar source).

- The columns "Adv_body" and "Assess_EG" were filled by most MS indicating GFCM and/or STECF EWGs that used fishery-independent data (e.g. MEDITS, MEDIAS, SOLEMON surveys) in the assessment of the stocks listed in the column "Stock". STECF is unable to check the accuracy of this information with regard to GFCM assessments and considers that these columns should be populated by the relevant GFCM working groups (WGSAD and WGSASP) rather than the MS or the RCG. Regarding the assessments made by STECF EWGs and endorsed by STECF, these are summarized in Table 1 (see below).

- Certain MSs listed several additional species/stocks (in column "Stocks") that have never been assessed for which the survey data could be used for their assessment. STECF notes that using both the full species name and the FAO species code would facilitate the interpretation of the Species Table. Additionally, STECF notes that, according to STECF EWG 18-04 report, the column "Stocks" should include, for all MSs, a complete list of relevant stocks (from EU MAP – Tables 1A and 1C) so that the Stocks database will be a suitable information source for identifying stocks for which there are gaps in the information provided by the existing surveys.

Surveys database

STECF notes that certain MS, particularly Greece and Romania report important gaps in the time series of MEDIAS and MEDITS.

STECF notes that, in addition to MEDIAS and MEDITS, Italy introduced four additional surveys in the respective "Surveys database": (a) the SOLEMON beam trawl survey in GSA 17, (b) the (extension) of MEDIAS to GSA 11 and 19, (c) a second bottom trawl survey in autumn, named MEDITS_4Q, for all Italian GSAs, and (d) a National hydraulic dredge survey, called DRES, in GSAs 9-10 and GSAs 17-18, for striped venus clam and/or razor clam.

STECF notes that the RCG Med & BS 2017 recommended the inclusion of the first two surveys (SOLEMON and the extension of MEDIAS to GSA 11 and GSA 19) in the list of mandatory surveys (EU MAP Table 10).

The information provided in the database for the Romanian surveys does not seem correct. STECF notes that MEDITS and MEDIAS surveys are not carried out in the Black Sea and the declared time series gap in the Romanian surveys (2008-2017) is probably incorrect. According to EU MAP Table 10, two mandatory surveys are currently carried out in the Black Sea, a bottom trawl survey (BTSBS) and a pelagic trawl survey (PTSBS). More clarifications are needed from the Romanian authorities.

STECF notes that the pelagic surveys by Bulgaria in GSA 29 Black Sea have been conducted by different vessels, and in some years (2010, 2011, 2014) hydro-acoustic surveys have been carried out instead of pelagic trawl surveys.

STECF response to the specific request

Survey data currently used in stock assessments

STECF, as an end user regarding Mediterranean assessments, and in collaboration with JRC, prepared a Table (Table 5.2.1) that summarizes the assessments made by STECF assessment EWGs (up to 2017) which used abundance data from fisheries independent surveys (MEDITS, MEDIAS, SOLEMON). These assessments have been accepted and endorsed by STECF (STECF assessment database: <https://stecf.jrc.ec.europa.eu/dd/medbs/ram>). The MEDIAS survey contributes to the assessment of most anchovy and sardine stocks, whereas the MEDITS survey contributes mainly to the assessment of hake, red mullet, deep-water rose shrimp and Norway lobster. The SOLEMON beam trawl survey is used for the assessment of sole and mantis shrimp in the Adriatic Sea.

Data issues with the survey data

Two main issues have been encountered in recent assessment EWGs and involve: (a) gaps in the survey time series and (b) delayed survey timing.

When important gaps exist in the time series, it may not be possible to estimate stock status and/or provide catch advice. This is particularly true for the Greek GSAs in which the MEDITS and MEDIAS time series have important data gaps (2002, 2007, 2009-2013, 2015). STECF notes that the EWG 17-15 was not able to assess stock status or provide advice for several assessments in GSAs 20, 22 and 23, partly because of the absence of usable time series of survey indices. Improving the quality of the stock assessments in these GSAs require the surveys to be carried out every year in the future.

According to the DCF legal basis (EU MAP), the MEDITS and MEDIAS surveys have a specified time frame for implementation (spring-summer, quarters 2, 3). Due to the fact that certain Med MS encountered problems in the implementation of surveys in recent years within the specified time frame, the RCG Med & BS 2017 issued a recommendation to allow them to carry out the surveys, even outside the specified time frame (RCG MED&BS 2017 Recommendation 3): *"RCG recommends Mediterranean MS to carry out the MEDIT survey according to EUMAP provisions. In case of delays due to the MS administrative and bureaucratic procedures implementation, RCG recommends MS to take any actions to perform the MEDIT survey even with a delay with respect to EUMAP provisions. RCG recommends that this also applies to other research surveys at sea. RCG consider that from the scientific point of view it is better to perform the delayed surveys rather to not perform it at all, even if this involves a delay."*

STECF notes that the EWG-18-16 discussed this issue in detail and concluded that this recommendation by the RCG is problematic and gives misleading guidance (see also section 5.1 in this plenary report). In the case of assessments, it is rarely possible to model away and correct for the effect of delayed surveys, because it is not possible to distinguish between true changes in the population from changes in the survey. For survey information on recruitment, this is particularly sensitive to the correct protocols being followed for surveys, and it is not possible to correct for survey timing within the model. If a late or misplaced survey results in an unexpected value it is usually not possible to determine if the new value is indeed a true reflection of the situation or the result of the failure to follow the agreed program.

The assertion that it is possible to correct through modelling for changes in survey timing is only true for certain specific aspects, within some assessment models in which the timing of the survey can be set annually, allowing mortality and possibly growth to be correctly allocated before and after the survey. However, there are a number of aspects that cannot be modelled away under normal circumstances:

- Inclusion of young of the year due to later surveys.
- Change in catch rates due to size selection, particularly for youngest ages.
- Changes in stock location/availability due to movement/migration.
- Changes in survey catchability due to effects of day length or seasonal changes.

The STECF agrees with the conclusions of EWG-18-16. The statement, "*it is better to perform the delayed surveys rather to not perform it at all*", conveys the wrong incentive to the MS and carries a risk that delayed surveys become common practice. It needs to be clear that failure to comply with agreed timing protocols for surveys should necessarily result in recognition of a failure to carry out a mandated task. However, as EWG also noted, if a survey is planned and started in accordance with agreed timing protocol, but finished with short delay due to unforeseen circumstance (i.e. bad weather, technical failures on research vessel or equipment, etc.), this should not be regarded as a failure.

STECF recognises however that surveys data may also be used for other scientific purposes than stock assessment, so for these other purposes, it may still be considered acceptable to proceed with delayed survey, preferably to not carrying the survey at all. Nevertheless, STECF emphasizes that stock assessment and the provision of management advice remains the primary use of survey data, and thus that delaying survey should not become common practice. This issue is also reported in section 5.1 of this report as a comment for the RCGs.

Finally, STECF notes that surveys in GSA 29 Black Sea are performed by different vessels/gears in different years and areas, so in order to be useful for stock assessment they need to be standardized.

Finally, STECF notes that all Mediterranean survey data (for ex MEDITS, MEDIAS) should be made publicly available as soon as possible, in order to increase their use for a broad range of scientific purposes

Possible gaps that need to be covered in the future by fisheries-independent data

There is a need to improve and expand the Mediterranean stock assessments in order to provide information on the status and exploitation levels of more stocks and thereby monitor more effectively the performance of the CFP. For many species/stocks currently not assessed by the GFCM or STECF EWGs, information is being collected during e.g. MEDITS (e.g. cephalopods, elasmobranchs) that could potentially be used as a basis for their assessment, though it will be necessary to collect data for several years and then to evaluate the data before their use can be validated.

STECF recalls that a recent ad hoc study examined by PLEN 18-01 (page 102), identified at least 75 stocks with MEDITS data, in addition to those in Table 1, for which stock assessment can be attempted but for many of these stocks the suitability of the data will need to be further evaluated.

Finally, STECF notes the need to provide survey based recruitment indices for stock assessments in the GSA 29 Black Sea.

STECF conclusions

STECF considers that, in order to populate the “Stocks database”, in relation to GFCM stock assessments, input is needed from the relevant GFCM working groups (WGSAD and WGSASP). Regarding the STECF assessments, Table 5.2.1 (thoroughly checked by STECF and JRC) can be used to populate the database.

GFCM and STECF assessment WG can also provide the information needed in order to assess the question in the Decision Support Tool (DST): 'is the survey essential to the advice?' However, STECF notes that if an assessment has been accepted for any stock, and there is an identified need for an assessment for the stock, the survey used can be considered as essential for this assessment, as it is very rare for assessments in the Mediterranean to use more than one survey.

Gaps in the data series and delays in survey timing impose serious problems in stock assessments and should be avoided.

The use of MEDITS data for the assessment of additional species/stocks should be further explored, and survey data in general should be made public to increase their use for broader scientific purposes.

Propositions for new surveys

STECF notes that, since 2007, the SOLEMON abundance data have been used to assess the status of common sole in GSA 17. Since 2016, data from this survey have also been used for the assessment of common cuttlefish and mantis shrimp in GSA17 in either STECF or GFCM assessment WGs. SOLEMON is international (Italy, Slovenia, Croatia) and is coordinated in the framework of ICES WGBEAM since 2009.

STECF also notes that the extension of MEDIAS to GSA 11 and GSA 19 will contribute to the full coverage of areas of distribution of the anchovy and sardine stocks in the western and eastern Italian waters.

Therefore, STECF considers that the SOLEMON survey in the Adriatic and the GSA 11 & GSA 19 extension of MEDIAS are suitable candidates for inclusion in the EU MAP list of mandatory surveys.

STECF also considers that the inclusion of an autumn-winter bottom trawl survey (as the MEDITS_4Q proposed by Italy) in addition to the ongoing MEDITS (spring-summer survey) would be beneficial for the assessment and management of Mediterranean demersal stocks.

Finally, STECF reiterates the recommendation of the STECF EWG on Black Sea assessments to restore the internationally coordinated hydro-acoustic surveys in GSA 29 Black Sea.

Table 5.2.1. Species in EU MAP Table 1A and assessments accepted and endorsed by STECF that used abundance data from fisheries independent surveys (MEDITS, MEDIAS, SOLEMON). Rows in grey indicate species for which the mandatory MEDITS and MEDIAS surveys are not appropriate for obtaining fishery-independent information. (STECF assessment database: <https://stecf.jrc.ec.europa.eu/dd/medbs/ram>). Cell with dash: no biological data collection in EU MAP for the respective species.

Species in EU MAP Table 1A	GSA 1	GSA 5	GSA 6	GSA 7	GSA 8	GSA 9	GSA 10	GSA 11	GSA 15	GSA 16	GSA 17	GSA 18	GSA 19	GSA 20	GSA 22	GSA 23
<i>Anguilla anguilla</i>																
<i>Aristeomorpha foliacea</i> (ARS)						MEDITS	MEDITS	MEDITS	MEDITS	MEDITS		MEDITS	MEDITS			
<i>Aristeus antennatus</i> (ARA)	MEDITS		MEDITS													
<i>Boops boops</i> (BOG)	-	-	-	-												
<i>Coryphaena equiselis</i>																
<i>Coryphaena hippurus</i> (COL)																
<i>Dicentrarchus labrax</i> (BSS)																
<i>Eledone cirrhosa</i> (EOI)				-												

<i>Eledone moschata</i> (EDT)	-	-	-	-												
<i>Engraulis encrasicolus</i> (ANE)	MEDIAS		MEDIAS	MEDIAS		MEDIAS	MEDIAS	MEDIAS		MEDIAS	MEDIAS	MEDIAS		MEDIAS	MEDIAS	MEDIAS
<i>Eutrigla gurnardus</i> (GUG)	-	-	-	-	-	-	-	-	-	-	-					
<i>Illex</i> spp., <i>Todarodes</i> spp. (SQM)																
<i>Istiophoridae</i>																
<i>Loligo vulgaris</i> (SQR)																
<i>Lophius budegassa</i> (ANK)		MEDITS	MEDITS								-					
<i>Lophius piscatorius</i> (MON)											-					
<i>Merlangus merlangus</i> (WHG)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Merluccius merluccius</i> (HKE)	MEDITS	MEDITS	MEDITS	MEDITS	MEDITS	MEDITS	MEDITS	MEDITS			MEDITS	MEDITS	MEDITS			

<i>Micromesistius poutassou</i> (WHB)			MEDITS	-	-	MEDITS	-	-	-	-	-	-	-	-		
<i>Mugilidae</i> (MUL)																
<i>Mullus barbatus</i> (MUT)	MEDITS	MEDITS	MEDITS	MEDITS		MEDITS		MEDITS	MEDITS	MEDITS	MEDITS	MEDITS	MEDITS			
<i>Mullus surmuletus</i> (MUR)		MEDITS				MEDITS			MEDITS	MEDITS						
<i>Octopus vulgaris</i> (OCC)																
<i>Nephrops norvegicus</i> (NEP)		MEDITS				MEDITS		MEDITS	MEDITS	MEDITS	MEDITS	MEDITS				
<i>Pagellus erythrinus</i> (PAC)									MEDITS	MEDITS	MEDITS	MEDITS				
<i>Parapenaeus longirostris</i> (DPS)	MEDITS	MEDITS	MEDITS			MEDITS	MEDITS	MEDITS			MEDITS	MEDITS	MEDITS			
<i>Penaeus kerathurus</i> (TGS)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Psetta maxima</i> (TUR)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<i>Sardina pilchardus</i> (PIL)			MEDIAS	MEDIAS		MEDIAS	MEDIAS			MEDIAS	MEDIAS	MEDIAS		MEDIAS	MEDIAS	MEDIAS
<i>Scomber</i> spp. (MAZ)																
<i>Sepia officinalis</i> (CTC)																
<i>Solea vulgaris</i> (SOL)	-	-	-		-	-	-	-	-	-	SOLEMON	-	-	-		-
<i>Sparus aurata</i> (SBG)	-	-	-		-	-	-	-	-	-	-	-	-	-		-
<i>Spicara smaris</i> (SPC)	-	-	-	-	-	-	-	-	-	-		-	-	-		
<i>Sprattus sprattus</i> (SPR)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Squilla mantis</i> (MTS)	-	-	-	-					-	-	SOLEMON	SOLEMON		-	-	-
<i>Trachurus mediterraneus</i> (HMM)																
<i>Trachurus trachurus</i> (HOM)	MEDITS	MEDITS	MEDITS			MEDITS	MEDITS	MEDITS								
<i>Trigla lucerna</i> (GUU)	-	-	-	-							-					
<i>Veneridae</i>	-	-	-	-	-	-	-	-	-	-					-	-

<i>Aphia minuta</i>	-	-	-	-	-			-	-		-	-		-	-	-
<i>Atherina</i> spp.	-	-	-	-	-			-	-		-	-		-	-	-
<i>Trisopterus minutus</i> (POD)																
Sharks, rays, skates									MEDITS	MEDITS	MEDITS					

5.3 Evaluation of the EU strategy on the Outermost Regions (OR)

Background provided by the Commission

Following the launch of the EU strategy on the Outermost Regions (OR), DG MARE organised the first meeting of the Forum on Maritime and Fisheries Affairs on 26th June 2018. The objective of the Forum was to establish a dialogue with a cross-section of stakeholders from the ORs on maritime and fisheries affairs. The second objective was to establish a regular platform for discussing issues which are specific to the ORs. This was achieved by selecting two themes: scientific knowledge of maritime ecosystems and conditions for the development of the blue economy.

During this meeting a number of presentations from OR fisheries scientists took place that underlined the main challenges that they are currently facing to improve their scientific knowledge. As a common issue, fisheries in the OR are characterised by a wide variety of species and gears, small size vessels and numerous landing places. In this regard, most interventions emphasised progress achieved in data collection and scientific knowledge in the context of the CFP. However, due the difficulties inherent to the ORs management measures are still often poorly based on scientific advice in most cases.

Relevant tools to overcome these difficulties were identified such as the perspectives offered by new technologies for data collection and good practices for improving assessment of small-scale fisheries in ORs. The implementation of observers' schemes and the cooperation with stakeholders were also considered as possible solutions.

In summary, it was considered relevant to work towards standardised/compatible formats for both fisheries and oceanographic data and regional models to share knowledge.

This would request reinforcing the local capacities (e.g. by setting up local observatories) and to mutualise knowledge between the ORs, identifying and sharing good practices and developing common methodologies.

Background information is provided on: <https://stecf.jrc.ec.europa.eu/plen1803>

Request to the STECF

DG MARE envisages launching an exercise of mutualisation of knowledge between the ORs in the framework of the STECF. As a first step, the STECF is requested to conduct an exploratory/feasibility discussion during the November 2018 plenary meeting likely to be followed by a dedicated STECF Expert Working Group to be held early in 2019 involving the relevant scientific bodies of the concerned Member States. STECF is invited to prepare to draft the ToRs for the planned EWG meeting.

The result of such an exercise would be the creation of a permanent network of research institutes that could address the specific situation of OR ecosystems and identify good practices to improve science in ORs. The necessary financial and logistic support for such a forum could be ensured through the forthcoming Framework Contract for studies in support of the CFP to be signed by the end of 2018. In parallel the concerned Member states would be encouraged to agree on common standards for fisheries data collection and to update their national work plans by 31.10.19 accordingly.

Additional background information provided to the STECF by the Commission

At the STECF plenary additional information regarding the first meeting of the Forum on Maritime and Fisheries Affairs on 26th June 2018 was provided by the representative of DG MARE. One of the meeting conclusions was the need to reinforce marine research in ORs, and specifically within the four main challenges related to the specific realities of OR that were identified: data collection, stock assessment, ecosystem knowledge, and social & economic impacts.

DG MARE also informed that the new framework contract for studies in support of the CFP, with relevance for OR, has been closed and proposals are now being evaluated. As stated above, this framework contract could provide the necessary financial and logistic support for the creation of a permanent network of research institutes that could address the specific situation of ORs.

Further clarification was also provided regarding the STECF ToRs, namely that the objective of the ToRs is for STECF to have a discussion on the possibility of having one Expert Working Group (EWG) meeting in early 2019, with the objective to answer general questions proposed by the STECF plenary in each of the four main challenges identified previously.

STECF observations

STECF notes that in response to a DG MARE call for proposals in 2015 (MARE/2015/06) the ORFISH project (<https://orfish.eu/>) has been established – Development of innovative, low-impact offshore fishing practices for small-scale vessels in outermost regions. STECF notes that the project aims, amongst other objectives, to provide a platform for exchange of knowledge on low-impact offshore fishing techniques among fishers from the outermost regions. Therefore, within the ORFISH project, STECF notes that there is already a concerted effort to create a platform for exchange of knowledge, although restricted to a specific subject and to the project duration.

STECF notes that the ORs are part of the EU-MAP for data collection and are consequently included in the Work Programs and Annual Reports of France, Spain and Portugal. Thus, the sampling plans and achievements are also evaluated by the corresponding STECF Experts Working Groups. Issues linked to ORs data collection could thus be investigated in more details in these EWGs by adding a specific ToR to these groups in 2019. STECF supports inviting the chairs of the Regional Coordination Groups (RCG) on Large Pelagics and the RCG on Long-Distance Fisheries, in addition to MS experts dealing with those fisheries.

STECF had a preliminary discussion on the reasons and the process by which an EWG could be convened within STECF in early 2019 and possible ToRs. In this regard, there was a discussion of the possibility of having already a focused EWG on one of the challenges identified, e.g. stock assessment, and the advantages of a focused approach, against a general EWG on all four main challenges and the risk of being too large.

STECF notes that a general scoping exercise has already been made at the Forum on Maritime and Fisheries Affairs on 26th June 2018, and therefore the EWG in early 2019 should define in more details and prioritize specific issues within the four main challenges already identified. STECF notes further that, at the moment, the plenary does not have the necessary expertise on OR to define specific ToRs, but also that it should be the aim of the EWG in early 2019 to identify concrete issues and the necessary processes for addressing the four challenges already identified. In this context, the ToRs for the 2019 EWG should take the form of a scoping and prioritization exercise, in order to allow for the development of a roadmap for the subsequent meetings that will form the basis for the permanent network of research institutes.

STECF further notes that the EWG needs to be established in a longer term to allow for a network to be effectively established. In this context STECF notes, as stated above, that the framework contract for studies in support of the CFP can provide the logistic and financial support for the network and the necessary preparatory work in between meetings.

STECF conclusions

STECF concludes that the aim of the EWG in early 2019 should be to identify the specific issues, and the necessary processes, for addressing the four challenges identified in: data collection, stock assessment, ecosystem knowledge, and social & economic impacts.

STECF concludes that the ToRs for the 2019 EWG should take the form of a scoping and prioritization exercise, in order to allow for the development of a roadmap for the subsequent meetings that will form the basis for the permanent network of research institutes.

Finally, STECF concludes that the organizational details of an STECF EWG in early 2019 should be examined when the 2019 STECF work plan is discussed in the remit of the STECF Bureau.

5.4 CFP monitoring

Background provided by the Commission

DG MARE intends to request STECF in 2019 to continue the monitoring of fish stocks with respect to the CFP objectives relevant to exploitation of the stocks with respect to maximum sustainable yield. This should continue reporting on the level of (i) fishing mortality relative to F_{MSY} or alternative proxies, (ii) stock status relative to safe biological limits, MSY Btrigger and relevant proxies for data-limited stocks, (iii) as well as any new indicators suggested as a follow up of the EWG-18-15 CFP monitoring: expansion of indicators findings.

Request to the STECF

On the basis of the 2018 report and the work done by EWG-18-15 CFP monitoring: expansion of indicators and any other relevant material, make appropriate methodological recommendation for the monitoring of fish stocks in relation to the MSY objectives of the CFP.

STECF observations

STECF observes that two different TORs relate to the question of the CFP monitoring and a possible expansion of indicators. In TOR 4.4 STECF provides comments to the findings and conclusions in the report of the EWG 18-15 while this ToR 5.4 describes specifically the indicators to be already included in the protocol for the 2019 report for the monitoring of fish stocks in relation to the MSY objectives of the CFP.

STECF agrees with the EWG 18-15 that there are a number of indicators discussed and tested which are already ready for inclusion in the protocol in 2019. These indicators do not require further methodological work whereas the other shortlisted indicators still require data preparation, further testing, validation and a decision on aggregation level before inclusion in the CFP monitoring report.

STECF conclusions

STECF concludes that the following indicators could be changed from an experimental status to a regular reporting status or new indicators to be included in next year's report on the CFP monitoring (see this year's report STECF Adhoc-18-01).

Number of stocks where $F > F_{MSY}$ OR $SSB < B_{MSY}$	Existing (experimental) – => core	ICES/STECF – assessment outputs (routine)
Number of stocks where $F \leq F_{MSY}$ AND $SSB \geq B_{MSY}$	Existing (experimental) – => core	ICES/STECF – assessment outputs (routine)
Time trend of F/F_{MSY} for stocks outside the EU waters in FAO 27	Existing (experimental) – => core	ICES/STECF – assessment outputs (routine)

Trend in SSB or biomass index for stocks of data category 3	Existing (experimental) – => core	ICES/STECF – assessment outputs (routine)
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In addition, the following indicator should be included to reflect the trend in recruitment within a 10-year time window, and in replacement of the current recruitment trend indicator:

Time trend in average decadal recruitment	Existing (experimental) – => core	ICES – assessment outputs (routine)
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These indicators have been added to the protocol document used by the JRC for its preparation of the 2019 CFP Monitoring report.

STECF concludes that all other shortlisted indicators proposed by EWG 18-15 variously require data preparation, further testing/validation and decisions on appropriate aggregation level before being reviewed as potential candidates for the inclusion in the CFP monitoring report in 2020.

5.5 Assessment of a *de minimis* exemption for turbot in the North Sea

Background provided by the Commission

The STECF EWG 18-06 on the Evaluation of the LO joint recommendations took place in Brussels, Belgium between 4 and 9 June 2018. For turbot in the North Sea, the EWG 18-06 was tasked to evaluate a temporary high survivability exemption of 3 years (2019-2021) caught with towed gears with a cod end larger than 80 mm in ICES area 4. As a condition of the exemption the turbot should be returned whole/undamaged to the sea as swiftly as possible and over the grounds where they were caught. Further extension of the exemption to turbot caught by trawl (OTB, PTB) of mesh sizes ≥ 80 mm was requested as well. The main outcome of this meeting was the following: based on survivability results provided by North Sea pulse-trawl fisheries, EWG suggested that further studies are needed in order to have reliable survival estimates for turbot.

A detailed account on the discussions that took place during the STECF EWG 18-06, regarding the objective evaluation of a temporary survival exemption for turbot in the North Sea, can be found in pages 65-66 of the report.

Request to the STECF

On the basis of the work done by EWG – 18-06 Evaluation of the LO joint recommendations, STECF is requested to review the supporting documentation underpinning a *de minimis* exemption for turbot in the North Sea, up to a maximum 7% in 2019, 7% in 2020 and 6% in 2021 of the total annual catches of turbot.

Summary of Information provided to STECF

An amendment to the Joint Recommendation from the Scheveningen Group was provided which describes a proposal for a *de minimis* exemption for turbot (*Scophthalmus maximus*). Specifically, the proposal is for a *de minimis* exemption for turbot caught by towed gears with a cod-end >80 mm (beam trawl TBB and other trawls OTB, PTB) in ICES area 4. The request is that in these fisheries, a *de minimis* exemption be awarded up to 7% in 2019, 7% in 2020 and 6% in 2021 of the total annual catches of turbot. The request for an exemption for *de minimis* is based on article 15.5.c.i, due to difficulties in improving selectivity for these gears towards turbot.

The data provided to support the exemption were turbot catch data in 2017 from all fisheries in the North Sea, derived from the ICES assessment working group. The data show total annual catches of turbot in 2017 of 3936 tonnes in the North Sea. Discards of turbot were given as 495 tonnes equating to a discard rate of 12.6%. Catches, discards and estimated *de minimis* amounts and vessel numbers associated with the proposed *de minimis* were not provided.

The justification for the *de minimis* exemption is based on further increases in selectivity being difficult to achieve. There was limited information provided to support this assertion. The proposal included reference to the 'Flemish panel' design, which is a selectivity enhancement used by Belgian beam trawlers, and a condition of an existing *de minimis* exemption for sole. Results from practical trials of the 'Flemish panel' had been previously provided with an earlier submission of the North Sea Joint Recommendations, and was re-examined by STECF PLEN 18-03, however there are no results presented for turbot. During

the PLEN 18-03 meeting, further supporting evidence was requested by STECF, and one report was received on testing a larger cod end mesh size for North Sea Dutch pulse trawlers (Molenaar, 2018). This report showed that while a reduction in undersized plaice was observed with an increase in codend mesh size from 80mm to 87/88mm there was a relatively higher reduction in marketable sole. It was argued that, to catch the full quota of sole with the larger codend mesh size, would require an increase in fishing effort and result in higher absolute discard amounts of plaice. It was inferred that, because turbot is of similar shape but larger size than plaice, the increase in codend mesh size that would be required to avoid unwanted turbot would have a similar effect and make the fishery economically unviable due to the reduction in sole catches.

STECF observations

The template table developed by STECF in 2016 for Member State Regional Groups to supply fisheries and fleet descriptors to support *de minimis* proposals was not provided. In principle, this information is to be provided by the Member States. In this case however, STECF Plenary generated some information to provide context for this proposed *de minimis* exemption. Data were derived from the STECF FDI (Fisheries-Dependent Information) database for the relevant fleets. The mean landings and discards are shown for the most recently published three years (2014-2016), together with the range for those years (Table 5.5.1). These data give a mean estimated discard amount of 503.6 tonnes, and a mean discard rate of 13% though with large variations between years, ranging from 2.6% in 2014 to 29.2% in 2016. These large variations may be partly explained by whether the TAC has been constraining or not (ICES 2017, 2018)² Data from STECF FDI indicate that landings of turbot are small compared to those of Dover sole (*Solea Solea*) and plaice (*Pleuronectes platessa*). Based on the STECF FDI, demersal towed gears account for 90% of turbot catches in the North Sea, with 60-70% of total turbot catches taken by the beam trawl (BT2) fleet. The estimated catches indicate that a 7% *de minimis* amount would equate to 217.4 tonnes of turbot catches in average for the three years, with range of 170 tonnes (2014) to 301.5 tonnes (2016). Based on data from these years 2014-2016, the 7% *de minimis* may thus not always equate to a quantity of catch corresponding to the total discard amount

2 http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/Special_requests/eu.2018.15.pdf

Year	Member State	Exemption applied for (species, area, gear type)	Species as bycatch or target	Number of vessels	Landings	Estimated Discards	Estimated Catch	Discard Rate %	Estimated 7% <i>de minimis</i>
2014	all	Turbot, ICES area IV, beam trawl and OTB, PTB	bycatch	unknown (not provided)	2363.9	64.3	2428.2	2.6%	170.0
2015	all	Turbot, ICES area IV, beam trawl and OTB, PTB	bycatch	unknown (not provided)	2395.4	188.2	2583.6	7.3%	180.8
2016	all	Turbot, ICES area IV, beam trawl and OTB, PTB	bycatch	unknown (not provided)	3048.8	1258.4	4307.2	29.2%	301.5
Avg (2014-2016)	all	Turbot, ICES area IV, beam trawl and OTB, PTB	bycatch	unknown (not provided)	2602.7	503.6	3106.3	13.0%	217.4

Table 5.5.1 Information calculated by STECF plenary for towed gears with cod end mesh size > 80 mm. Data source: STECF FDI classic, Annex IIa, regulated area 3B2, years 2014-16, species TUR.

The argument presented for the difficulties to improve selectivity is that turbot cannot easily be avoided or selected out due to its overlap in spatial occurrence and similar but larger body shape compared with target species, like sole. The proposal stated that it is not possible to increase the mesh size of trawls without unacceptable losses of sole. STECF observes that no empirical data on the size of caught and discarded turbot relative to other species caught in the defined fisheries was provided to support the case for the exemption. Similarly, data on turbot caught during gears trials and data on the spatial distribution of turbot catches were lacking. STECF notes nevertheless that the inference in the effect of increasing mesh size is supported by information from the ICES assessment group which states that 'the minimum mesh size of 80 mm in the beam trawl fishery selects sole at the minimum landing size (24 cm). However, this mesh size is likely to catch immature turbot (age 1 and 2 fish). Mesh enlargement would reduce the catch of smaller turbot and increase the yield per recruit [of turbot] but would also result in loss of marketable sole catches' (ICES, 2017). Therefore, while no empirical evidence was provided, STECF notes that the difficulties of improving selectivity, with regard to increasing the codend mesh size towards turbot in the North Sea beam trawl fishery, are supported by statements made in the ICES North Sea turbot assessment (ICES, 2017).

The CFP Article 15.5(c)(ii) states that where continued discarding is permitted through the application of *de minimis* provisions, whilst these catches "shall not be counted against the relevant quotas; however, all such catches shall be fully recorded". The proposal provided did not mention how the uptake of the allowable *de minimis* amount will be monitored. STECF note that with the introduction of electronic monitoring for the North Sea beam trawl fleet, associated with the plaice survivability exemption road map (see PLEN 18-03 Section 6.6), there is opportunity to effectively monitor the uptake of the turbot *de minimis* for this fleet.

STECF conclusions

STECF reiterates that the role of STECF and STECF EWGs is to evaluate joint recommendations on the basis of the scientific rigour and robustness of the underpinning information supplied by Member States. STECF cannot adjudicate on whether exemptions should be accepted or not. The conditionalities – such as “very difficult to achieve” means that there is an element of judgement required in deciding on whether to permit or reject a proposal that cannot be based solely on the scientific evidence presented.

STECF reiterates that the absence of relevant information makes it difficult to evaluate the proposed exemptions. Information of the catches, discards, landings, discard rates and vessel numbers associated with this *de minimis* proposal were not provided. Empirical evidence of the effect of gear modifications on turbot catches, spatial distribution of turbot catches, and catch sizes of turbot relative to other species caught in the defined fisheries, was not provided.

The information presented on the difficulties in avoiding unwanted catches of turbot are based on inferences associated with the body shape and size of turbot relative to the target species. While no empirical evidence was provided, STECF notes that the difficulties of improving selectivity, with regard to increasing the codend mesh size towards turbot in the North Sea beam trawl fishery, is consistent with statements made in the ICES North Sea turbot assessment (ICES, 2017).

The proposed *de minimis* would apply to those fisheries catching and discarding around 90% of the turbot in the North Sea (2014-2016 FDI data). The estimated *de minimis* amounts, based on a 7% level have in some previous years been lower than the discard estimates for the defined fleet, and therefore a 7% *de minimis* may not necessarily cover all of the unwanted catches of turbot. In the absence of successful avoidance measures, it is anticipated that previously discarded catches not covered by the exemption would have to be brought ashore.

STECF stresses the need to collect discard data associated with *de minimis* exemptions and note that if electronic monitoring is introduced for the beam trawl fleet, as part of the plaice survival exemption roadmap (Section 6.6), it could provide a mechanism to monitor the uptake of *de minimis* amounts.

STECF reiterates that when using *de minimis* provisions, the requirements of Article 2 of the Common Fisheries Policy CFP), to fish at F_{MSY} , can only be met if the *de minimis* discard quantities are deducted from the agreed catch opportunity (TAC) arising from F_{MSY} based advice.

References

- ICES (2017). Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK), 26 April-5 May 2016, Hamburg, Germany. ICES CM 2016/ ACOM:14. 19 pp.
- Molenaar, Pieke and Chun Chen (2018). Cod-end selectivity for sole (*Solea solea*) and plaice (*Pleuronectes platessa*) in North Sea pulse-trawl fisheries, 2018. Best Practices II – WP4 selectivity Wageningen, Wageningen Marine Research (University & Research centre), Wageningen Marine Research report C049/18. 30 pp.

5.6 Assessment of the roadmap for plaice in the North Sea

Background provided by the Commission

The new joint recommendation suggests a survivability exemption for catches of plaice below MCRS made with beam trawl gears in ICES subarea 4 and ICES division 2a. Member States provided scientific evidence in order to demonstrate discard survival rates in that fishery. The evidence was submitted to STECF which concluded that survivability in that fishery is affected by many factors and is highly variable. STECF also had doubts that given the indicative relatively high discard rates and relatively low survival rates, it is likely that significant quantities of plaice discarded will not survive.

In order to collect this data, fishing would need to continue and as such, the Commission considers that the exemption should be granted, but Member States should have the obligation to submit relevant data allowing STECF to fully assess the justification and allowing the Commission to carry out a review. Under those circumstances, the exemption may be applied provisionally until 31 December 2019.

Request to the STECF

On the basis of the work done by EWG-18-06, STECF plenary is requested to make a first assessment of the developed roadmap, for an assessment on the survivability programme. STECF is requested to comment on any elements that STECF finds are lacking in order to address its comments made in EWG-18-06.

STECF response

The response is based on three documents: i) the Joint Recommendation of the Scheveningen Group, with supporting documents ii) the EWG-18-06 report, and iii) the « Roadmap Plaice (FDF) », issued by the Dutch Ministry of Agriculture, Nature and Food on 26 October 2018.

The Joint Recommendation proposes that the exemption would be conditional on a range of measures and incentives:

- 'BT2 vessels < 221kw or less than 24m in length overall, which are constructed to fish in the twelve mile zone, can avail of the 3-year temporary exemption for high survivability for flatfish if the average trawl duration is less than ninety minutes.'
- 'BT2 vessels >221kw) or greater than 24m can avail of the exemption on the basis of a package of measures and incentives towards more selective fishing to be developed in the coming three years'

Summary of background information provided to STECF

The Joint Recommendation and supporting evidence provided

STECF reviewed information in the Joint Recommendation previously submitted to STECF EWG 18-06 and PLEN 18-02 to support an exemption request on the basis high survivability for plaice caught by North Sea beam trawlers. This included results from plaice discard survival studies with North Sea beam trawlers and information on the potential to increase survival of discarded plaice using technical measures in beam trawls.

Specifically, the supporting information described the potential improvements in the survivability of plaice when using devices in beam trawls that reduce the capture of stones and debris. Two technical modifications were described: i) flip-up rope rigged on top of the bobbin rope in the net opening; ii) 'benthic release panel' a square mesh panel inserted in the belly of the trawl, just in front of the codend. Several older scientific studies were referenced to demonstrate the potential of these devices to reduce catches of stone, debris and benthos (Fonteyne and Polet, 2002, Revill and Jennings, 2005 and Soetaert et al., 2016), and while it could be anticipated that this may improve survival levels of discarded plaice, no trial results are available yet to support this. STECF notes that, within the road map document, Belgium proposes to introduce these modifications for the BT2 fleet from 1st of January 2019.

STECF observe that there are two main gear types that would be covered by the proposed exemptions, conventional beam trawlers and pulse trawlers. The evidence to support the Joint Recommendations provided for evaluation by EWG 18-06 demonstrated survival rates of discarded plaice from conventional beam trawlers of between 3% and 57% (Uhlmann, 2018). It was stated that the Belgian beam trawl fleet is highly diverse with respect to its technical operations and geographical areas of activity and this may affect survival rates. For pulse trawls, Van der Reijden et al., (2017) published a mean survival rate of 15% for representative fishing conditions. Molenaar (2018) tested the possibility of using a hopper filled with water on board a pulse trawler to increase survival, but reported a non-significant increase of 4% in survival (from 16% (3-20%) in normal fishing practice to 20% (10-45%) when using water-filled hoppers) Neither was there any discernible effect on survival of reducing the towing duration or using a knotless codend in that study.

The roadmap

Following the EWG 18-06 evaluation the Scheveningen Group has developed a roadmap which proposes conducting further scientific research as a condition of achieving exemption from the Landing Obligation for plaice caught by beam trawlers in the North Sea. The roadmap states that the high volume of unwanted catches of plaice taken by this fleet cannot be brought ashore without undermining the economic viability of the fleet. To mitigate against this economic choke risk, it is proposed that fishing methods with improved survivability and selectivity will be developed:

The main goals described in roadmap are:

1. Reducing the fishing mortality
 - a. Reducing the amount of captured fish by improving the selectivity of fishing gear
 - b. Increasing the chance of survival of sea-returned specimens (discards).
2. Improving the knowledge base of the fishing mortality, by developing a system that can automatically register all catches, sized and undersized, of all species in the BT2 fishery (Fully Documented Fisheries, FDF). The initial focus of the project will be on TAC-species.

To achieve an optimal result from potential innovations for the reduction of the fishing mortality, the roadmap proposes a step-wise or phased approach from design to validation.

- The first step is to gather existing and new ideas for improved survivability and better selectivity (**Design phase**).
- The second step is to test innovations in a flume-tank or testing-centre using a small-scale model of the fishing gear (**Test and development phase**)
- The third step is to further analyze these innovations by generating detailed data during scientific trips (**Measurement phase**).
- The final step is for each selected innovation establish a validation plan stating the required additional research needed (**Validation phase**).

The timeline of the different steps is presented below:

Metier	Phase	2019				2020				2021			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
BT2 & TR2	Design												
	Test and development												
	Measuring												
	Validation												

the roadmap stipulates that the exemption would be conditional on the implementation of a Fully Documented Fisheries (FDF) using Electronic Monitoring technologies (EM). It is proposed that a FDF will be implemented over a 3-year period. In year 1, FDF will be developed and tested, then FDF can be expanded to a larger number of vessels and, eventually, it would be fully implemented on fleet level. The timeline of the first year of the FDF roadmap is presented below:

Workpackage	Task	2019			
		Q1	Q2	Q3	Q4
WP A: Define catch composition	T.a1: Recruitment and preparation of vessels				
	T.a2: Workshop for project group: explain and communicate FDF concept to all project partners				
	T.a3: Install, maintain, test and evaluate EM set up and review process				
	T.a4: Video review				
	T.a5: Collect landing and discard information for EM validation (fisher data)				
	T.a6: Data collection on-board observer to validate EM estimations				
	T.a7: Statistical analysis and comparison: EM vs. observer and fisher data				
	T.a8: Provide total catch estimates of two regulated species at fleet level				
WP B: Define catch and discard volume	T.b1: Load cell pilot study				
	T.b2: Discard valve pilot study				
	T.b3: Install, maintain, evaluate and adjusting systems				
WP C: Automated video analysis	T.c1: Development of machine-learning methodology				
	T.c2: Develop prototype system to facilitate computer vision technology on board				
	T.c3: Intergrade computer vision technology on board				
WP D: Reporting, disseminating results and evaluation	T.d1: Evaluate reliability, accuracy and efficacy of FDF scenario's				
	T.d2: (Interim) reports				
	T.d3: Dissemination of results to stakeholders				
	T.d4: Present results in various committees, groups and platforms				
	T.d5: Publications in relevant media platforms				
	T.d6: Stakeholder meetings				
	T.d7: Project evaluation				

In terms of the Electronic Monitoring technology, it is proposed that to get the best possible view of the catch composition, camera's will be pointed at sorting conveyor belts to register close ups of passing catch. In addition, tools for automated total catch and discard weight registration will be developed and included to the standard EM setup, where in several cases only cameras are used to record total volumes of catches. It is proposed that the EM systems will include electronic load cells mounted on the towing beams of the vessel, to register total catch weight when hauling the cod-end on board, and automated discard measuring valves in the discard spillway, to measure discard volumes. Both features are relatively new innovations in fisheries monitoring and need to be tested and evaluated in the pilot study during the first phase.

A schematic figure of the proposed FDF catch estimation method is provided below:

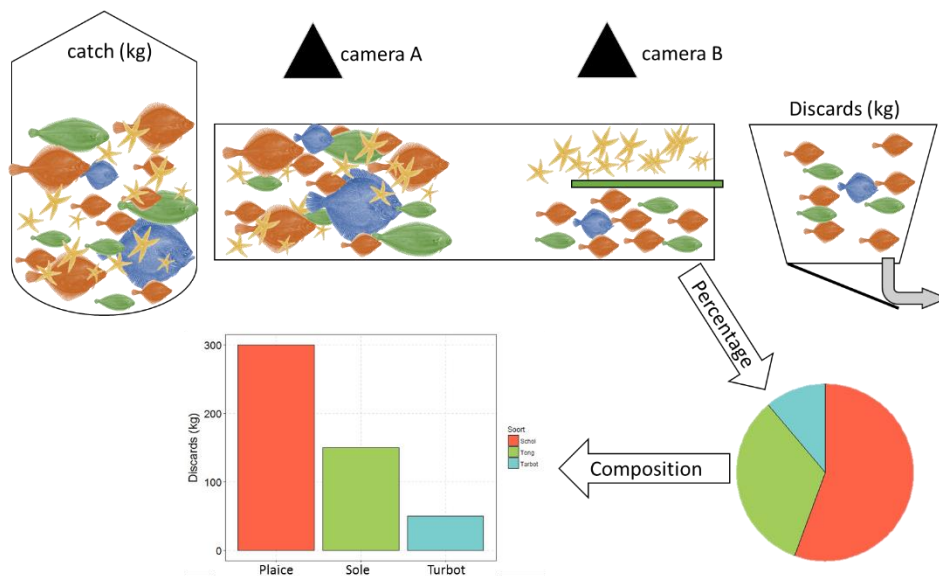


Figure 5.6.1. FDF catch estimation method: Automated registration of total catch volume and discard volume. Estimation of catch composition through video review. Extrapolation with total catch or discard volume as auxiliary variables.

STECF observations

STECF observes that, while average discard survival rates for plaice are relatively low in beam and pulse trawls, a range of survival rates has been observed, and survival rates are higher for some fishing trips. Therefore, understanding the variables that influence survival rates may inform on measures that could improve survival levels. STECF notes that the studies presented show that survival was strongly associated with fish condition at the point of discarding, whereby fish assessed to be healthy, and with little or no injuries, were more likely to survive. It is proposed in the Joint Recommendation and in the roadmap that to increase survival, the focus of future work should be on improving the condition of fish during the capture process rather than during the catch processing.

The Joint Recommendation states that "plaice has a proven potential for high survival, given already existing high survival exemptions in place in the North Sea and other regions". STECF notes that there are currently (in 2018) no survivability exemptions for plaice. It is though anticipated that some will be implemented in 2019, since a number of plaice survivability exemptions have been requested for plaice in the North Sea, supported by evidence indicating survival rates of 100% for static nets (Ern et al., 2018), 78% for Danish seines (Karlsen et al., 2018a) and 75% (in winter) for otter trawls (Karlsen et al., 2018b) (see EWG 18-06)

In reviewing the Joint Recommendation, STECF notes for the package of measures and incentives towards more selective fishing will be developed over a three-year periods, as detailed in the roadmap, only applies to the large vessels (>221kw). STECF observes that there seems to be no basis for the temporary exemption proposed for the smaller vessels (<221kw), i.e. there is no commitment to generate evidence that will enable an assessment of the appropriateness of the temporary exemption for smaller vessels conducting hauls less than 90 minutes. Additionally, STECF considers that the threshold of 90 min is not well supported because the results presented in the supporting Annexes (Annex iii) of EWG-18-06 shows that "no effect of short (90 instead of 120 min) hauls on discards survival probability could be detected".

STECF recognises that the proposed package of measures might increase the potential for more selective fishing in the long-term, but the Joint Recommendation makes no commitment that vessels benefiting from the survival exemption will take up any newly developed selective fishing methods. Moreover, STECF observes that the emphasis of the justification for exemption is on the future development of more selective trawls. STECF notes that the CFP Article 15 states that survivability exemptions are awarded on the basis of scientifically robust high discard survival rates. Therefore, evidence on discard survival estimates would need to be provided alongside developments in selective gears to enable a scientific assessment of a survivability exemption.

Regarding objective 1a of the roadmap (improving selectivity) STECF notes that a project will be started in which fishermen will conceive and test selective trawls in collaboration with scientists, aimed at reducing catches of undersized plaice. STECF notes that examples of the types of gear modifications are given (closed codend, SEPNEP or Swedish grid), but there is no indication of how many designs will be tested or how many vessels may be involved in the trials.

Regarding objective 1b (increased survival), the roadmap states that work will focus on testing innovations designed to improve the condition of plaice during trawling by vessels >221 kW. Two specific designs are mentioned i) a closed codend or ii) a pumping system appear worth pursuing. The closed codend design, from New Zealand, reduces the water flow inside the codend, reduces mechanical damage and the catch comes on board in a water filled bag.. The pumping system consists of a tube connected to the codend, the catch is pumped to the vessel continuously or at suitable time intervals. This innovation is applied in the Arctic krill fishery. This system reduces the mechanical impact of the codend and netting on the catch. STECF notes that these designs are worthy of further investigation, but note that the transferability of this technology to the beam trawl fishery is unknown.

It states that a project will commence to 'investigate the effect of the two technical alterations in the large-scale fishing sector on the survivability of plaice'; and 'to formulate some recommendations to improve the survivability of plaice, based on new data'. STECF note that vessels <221kW are excluded from this initiative. STECF notes also that it should be made explicit in the roadmap whether and how these projects will generate estimates of discard survival when using these innovations.

The roadmap makes specific reference to the Belgian beam trawl fleet. In addition to the measures described in 1a and 1b, it is proposed that from 1st of January 2019 the measures of including flip-up rope rigged on top of the bobbin rope in the net opening; or a benthos release panel, inserted in the belly of the trawl, just in front of the Flemish panel for its entire concerned fleet segment.

Regarding objective 2 (Fully Documented Fisheries), STECF notes that participation in the FDF scheme will be voluntary. It is not clear how vessels will be selected at the start of the implementation period, or whether incentives will be made available, which may affect the representativeness of the data collected.

STECF observes that the high survival exemption is intended to apply to all vessels in the fleet segments concerned, although only a subset of those will take part in the FDF scheme or selectivity and survival trials. STECF considers that justification should be provided for the other vessels to benefit from the exemption. In particular, although many of the proposed FDF new features require time to be developed and tested, STECF notes that an EM-based Fully Documented Fisheries system is not a new monitoring system and has been already tested extensively in Europe and in different fisheries around the world. In this context, STECF notes that in order to attain full accountability of the catches, required for the exemption, the standard FDF system could be implemented on all vessels that are

under the exemption, while the new developments would be developed and tested on a subset of the vessels. STECF recognises however that earlier trials on the application of standard FDF methodology for the estimation of undersized flatfish has proven to be challenging and resulted in biased estimates (van Helmond et al 2017), which supports the need for further technological developments.

STECF agrees that the use of Electronic Monitoring (EM) in the context of a FDF is likely to benefit the implementation of the landing obligation and the monitoring of the exemption. However, STECF underlines that FDF will only lead to improved recording of catches (landings and discards) but will not necessarily lead to achieving the other objectives of the roadmap or of the landing obligation (e.g. improved selectivity, survivability, etc.).

STECF notes that automating the data capture process through machine learning techniques (computer vision technology) will considerably improve the efficiency of FDF. However, development of the technology to achieve this will require some time.

STECF conclusions

General

The CFP Article 15 states that survivability exemptions will be considered based on scientific estimations of discard survival. STECF concludes that the justification for survivability exemption for North Sea plaice caught by beam trawls is based on the potential for improving survival and selectivity, but not on demonstrated high survival. STECF notes that, if this exemption is awarded this will set a precedent for exempting vessels from the Landing Obligation that is not consistent with Article 15.

The motivation for the proposed work is to mitigate against the economic costs of landing high volumes of unwanted plaice. STECF concludes that to enable an assessment of the progress and success of the programme, it would be necessary to establish some reference target thresholds quantifying the maximum level of reduction in unwanted catches that would maintain an economically viable fishery, and the level of discard survival which would be considered high enough to propose an exemption based on high survival.

The basis for the proposed temporary exemption for larger vessels (>221kW) is the development of more selective trawls, improvement in survival and the application of EM monitoring. However, there is no basis given for the proposed temporary exemption for the smaller vessels (<221kW) when conducting tow durations of 90mins or less. The reasoning provided, that survivability of plaice is higher for shorter tow durations, is not supported in the available evidence. STECF concludes that, in the absence of supporting evidence, the (<221kW) fleet should be included within the proposed research and monitoring programme.

Selectivity

STECF concludes that the likely effects on plaice survival of the introduction of flip up ropes and benthic panels for the Belgian BT2 vessels >221kw or greater than 24m on 1 January 2019 cannot be assessed with the data and information provided. Previous studies relating to such gear devices have been undertaken but these studies were focused on investigating gear selectivity and not survival of plaice.

STECF concludes that the roadmap focusses on the testing of technical gear adaptations but there is no information on how these new gears will be implemented in the entire fleet, so the roadmap will not automatically lead to more selective fishing practices in the short term.

STECF notes that the temporary exemption, agreed among Member States is for one year, yet the road map is for a three years programme. It is not clear what additional evidence on increased selectivity will be available to evaluate the exemption after one year.

Survivability

STECF observes that survival probabilities from the provided studies indicate an average survival rate of around 15% for plaice discarded by pulse trawlers. This compares with a mean 75-100% plaice survival from studies of North Sea otter trawl, seine net and static net fisheries used to support other proposed exemptions. Pulse trawl studies have demonstrated a maximum trip level survival rate of 45% (with the use of a water filled hopper), and of 57% for conventional beam trawls. Such studies indicate higher discard survival rates may occur under certain conditions and depending on the mechanisms that influence survival, the development of fishing methods that increase the survival rate of plaice in the North Sea beam trawl fishery may be possible.

STECF notes that studies indicate that survival for plaice is strongly affected by fish condition. Therefore, STECF consider that the initiatives i) closed codend and ii) pumping system to improve the condition of discarded fish during the capture process rather than in the catch processing are worthy of further investigation. However, STECF notes that the road map does not specify when and how they will be tested.

Full Documented Fisheries

STECF concludes that the Electronic Monitoring set up with cameras and additional tools for automated catch and discard weight registration are developments that may lead to improved recording of catches (landings and discards) but will not necessarily lead to achieving the objectives of the landing obligation (e.g. improved selectivity, survivability, etc.).

STECF proposes that in order to attain full accountability of the catches, required for the exemption, the standard FDF system could be implemented in all vessels that are under the exemption, the new other proposed measures can be developed and tested using only a small proportion of the fleet. There seems no justification on scientific grounds to grant an exemption from the landing obligation for the entire fleet if only some vessels will be participating in selectivity and survival experiments.

References

van Helmond, A. T. M., Chen, C., and Poos, J. J. Using electronic monitoring to record catches of sole (*Solea solea*) in a bottom trawl fishery. – ICES Journal of Marine Science, doi:10.1093/icesjms/fsw241.

5.7 Joint Recommendation from BALTFISH regarding alternative mesh size for T90 and the BACOMA window

Background provided by the Commission

The JR states that scientific trials conducted in the Baltic Sea cod fishery have demonstrated that a modified T90 gear and 110 mm BACOMA escapement-window gave better size selectivity than the standard codend for T90 allowed for the current Baltic Sea Technical Measures Regulations – Regulation 2187/2005. On this basis and in accordance with Article 8 (1) (b) in the Multiannual plan for the Baltic Sea, the BALTFISH group recommend in the JR that these modified gears be allowed by the way of derogation to the existing regulations as an alternative to the current regulated gears, The JR provides a suggested wording for the definition of the modified gears.

Request to the STECF

The STECF is requested to review the supporting documentation provided for technical measures aimed at increasing gear selectivity for reducing or, as far as possible, eliminating unwanted catches.

Summary of background information provided to STECF

In accordance with Article 8 (1) (b) of the Multiannual Plan for the Baltic Sea, (Regulation (EU) No 2016/1139 of the European Parliament and of the Council of 6 July 2016) the Commission is empowered to adopt delegated acts regarding specifications of modifications or additional devices to the fishing gears, to ensure or improve selectivity, to reduce unwanted catches or to minimize the negative impact on the ecosystem.

In 2017, Danish fishers developed a modified codend for the T90 gear and the gear was tested in close cooperation with the National Institute of Aquatic Resources, DTU Aqua (Denmark). In addition, the Thünen Institute of Baltic Sea Fisheries (Germany), conducted a theoretical study to assess the effect of changing the mesh size in the Baltic trawl fisheries (both in trawls with BACOMA window and those with T90-codend). The results from both studies are reported in the report "*Scientific justification for modifying T90 and BACOMA codends in the Baltic Cod Trawl Fisheries, 1 June 2018*". The results from both studies were presented to STECF with an Annex to the Joint Recommendation (JR) "*Scientific justification for amending the legislation regarding T90 and BACOMA codends in the Baltic Cod Trawl Fisheries*" (hereafter named Annex to JR). The design tested by DTU Aqua was a T90 110 mm (Table 1 of the Annex to JR). The trials looked at the effect of the codend circumference and material, and compared the industry-developed gear with the legislated T90 120 mm (Table 3 of the Annex to JR), therefore the experiment addressed the effect on selectivity of different parameters individually. The gear was tested on-board a commercial trawler in a twin-rig setup, making it possible to compare the selectivity (relative selectivity) of the modified codend with that of the legislated T90 120 mm codend. The results from the sea trials show that when several parameters are modified simultaneously, it is important to understand the individual effects of each of the parameters. While the industry was advocating for an increase in codend circumference, the results obtained show that increasing the circumference reduces the selectivity for cod.

The analysis of the Thünen Institute concludes that under the current stock status, the current 120 mm codends result in higher discard ratios of cod and thus result in significant

losses of commercial catch (incl. economic problems for the fishery and potentially reduced compliance), when compared to the 110 mm codends.

A further analysis carried out by the Thünen Institute and provided to STECF showed that the 110 mm BACOMA and T90 codends are more selective in terms of discard ratio (hereunder called dnRatio) compared to the 120 mm BACOMA and T90 codends. According to the results, the proportion of cod <35 cm in the catches retained by the 120 mm BACOMA and T90 is greater than the 110 mm BACOMA and T90. The Thünen Institute concludes in the Annex that re-introduction of the previously legislated 110 mm minimum meshes seems appropriate and would be easy and cost-effective, since fishermen can use their 'old' gears. The analysis presented is based on modelling the performance of the above trawl designs assuming a single population size profile derived from the Baltic International Trawl Survey (BITS).

After consulting the Baltic Sea Advisory Council (BSAC), BALTFISH High Level Group (HLG) recommends that the Commission modifies Commission Regulation 2187/2005 by Delegated act as follows:

Proposal for text for alternative mesh size in the T90 codends and for the BACOMA window, of which all of the conditions below should be fulfilled:

T90-codend: "By way of derogation from footnote 2 to Annex II and point b of appendix 2 to Annex II of Regulation (EC) No 2187/2005, the mesh size of the codend shall be at least 110 mm."

BACOMA-codend: "By way of derogation from footnote 2 to Annex II and point d sub point i of Appendix 1 to Annex II of Regulation (EC) No 2187/2005, the mesh size of the BACOMA-escapement window should be at least 110 mm."

STECF comments

STECF observes that the information presented in the Annex to JR does not provide sufficient information to fully assess whether the proposed reduction in the mesh size in BACOMA window and T90 codend from 120 mm to 110 mm would improve the selectivity in the Baltic cod fishery. For example, STECF notes that no information were provided in the German analysis of the Annex about the uncertainty in the discard ratio (e.g. 95 % confidence limits) for each gear, mesh size and ICES area.

Hence using these information, it is not possible to assess whether the reported differences between the gear-mesh size configurations are significantly different. STECF also notes that other two important indicators are missing (nP- and nP+, see below and further details in Herrmann et al., 2012; Sala et al., 2015) and the sensitivity of the results to alternative population structures was not tested.

In an attempt to further investigate the selective properties of 110 and 120 mm meshes in the BACOMA window and T90 codends, STECF requested from the DTU Aqua and the Thünen Institute the raw data from the trials presented in Annex to the JR. STECF notes that the data provided were somehow inconsistent with the data presented in the Annex relating to the Danish trials. A new version of Tables 3 and 4 have been provided by DTU Aqua to the STECF with a correct order of the sea trials, which should therefore replace those in the Annex.

Table 3 of the Annex. The technical specifications of the gears tested.

Characteristic	Industry developed	T90 120 mm PET	T90 120 mm PE	Larger circumference
Trial no.	3	2	2/3	1
Mesh orientation	T90	T90	T90	T90
Nominal mesh size (mm)	110	120	120	120
Measured mesh size (mm)	109.1	121.4	123.1	122.8
Standard deviation	2.4	1.9	2.2	2.2
Codend circumference (mesh no.)	92	50	50	92
Twine thickness	4 mm double	4 mm double	4 mm double	4 mm double
Lastridge ropes	Yes	No	No	No
Material	Polyethylene (PE)	Polyester (Polyethylene terephthalate; PET)	Polyethylene (PE)	Polyethylene (PE)
Codend stretched length (m)	10.5	8	8	8
No. of selvages	2	2	2	2
Number of meshes in selvedge	2	2	2	2

Table 4 of the Annex. Overview of the hauls. Values in parentheses are standard deviations.

	Trial 1	Trial 2	Trial 2 & 3
No. of hauls	10	6	10
No. fish caught	14 254	5 856	9 770
No. fish measured	14 254	5 856	9 770
Average catch size (kg)	691 (±159)	1130 (±368)	782 (±344)
Average haul duration (min)	304 (±76)	317 (±83)	258 (±66)
Average fishing depth (m)	66 (±3)	54 (±10)	62 (±11)

Using the data provided by the Thünen Institute only, STECF investigated the following single effects on Baltic cod selectivity:

- Gear type (T90 or BACOMA);
- Mesh size (110 or 120 mm);
- Population structure. The length frequency distribution of cod population in the Subdivision 22 provided by the BITS survey in 2018 1st quarter as used in the Thünen Institute study was used as follows to describe three Scenarios for population size distributions (Figure 5.7.1): **1)** Western Baltic Cod population from Baltic International Trawl Survey (BITS); Quarter 1; for year 2018 and ICES subdivisions 22 (ICES-DATRAS database - <http://datras.ices.dk>); **2)** same population but shifted by subtracting 50 mm to all length classes (population with smaller individuals), and; **3)** same population by shifting +50 mm all length classes of the real population (population with larger individuals).

For each scenario, a number of indicators were computed: the discard ratio (hereafter *dnRatio*), the percentage of the fractions below the MCRS (35 cm) (*nP-*) and the percentage of the fractions equal to or above MCRS (*nP+*). In summary, the indicator *nP-* provides an estimate of the fraction of undersized fish (<MCRS) in a given population that is retained by the trawl. The lower the value of *nP-* the more selective the gear with regard to fish <MCRS. Similarly, indicator *nP+* provides information on the efficiency of a given gear in selecting marketable sizes (\geq MCRS) when fishing a given population. Higher *nP+* values indicate higher catch efficiency towards marketable sized fish. The *nP-* and *nP+* should be read together, because the optimum gear type and/or mesh size is a trade-off between minimisation of retained undersized individuals (*nP-*) and the efficiency in retaining commercial-sized individuals (*nP+*). The indicator *dnRatio* calculates the species-specific discard ratio (in numbers = discard in numbers divided by catch in numbers) assuming a knife edge split at MCRS, i.e. every fish below and equal or above MCRS is either discarded or retained, respectively. The lower the *dnRatio* the more suitable the codend is for the specific fishery. (see Herrmann et al. (2012) and Sala et al. (2015; 2016; 2017) for further details on each indicator)

The STECF response is hence based on the information contained in both the Annex to JR report and the new analysis providing supporting data and information.

Results of STECF analyses

In the three population profile scenarios, for the same mesh size, the cod fractions both above and below the MCRS (*nP+* and *nP-*, respectively) retained by the BACOMA as well as the discard ratio were larger than the T90 gear (Table 5.7.1, Figure 5.7.2 and 5.7.3). This means that the BACOMA codends catch more fish of all lengths, i.e. they have a better efficiency for commercial sizes and worse selection for undersized cod.

As expected, a mesh size of 110 mm, both in the BACOMA window and T90 codend designs, resulted in a larger retention fraction of legal cod sizes (*nP+*) (Table 5.7.1, Figure 5.7.2 and 5.7.3). The retention fraction of legal sized cod almost doubled compared to the 120 mm BACOMA window and T90 codend (Table 5.7.1). STECF notes that such results imply that less fishing effort would be needed to take a given amount of quota using 110 mm mesh for a BACOMA window and T90 codend compared to a 120 mm mesh BACOMA window and T90 codend.

The 120 mm BACOMA window and T90 codend retained fewer undersized (<35 cm) individuals (*nP-*) while still having a relatively high retention of legal sized cod (\geq 35 cm). In summary, STECF notes that decreasing mesh size to 110 mm implies a potential increase in catching efficiency (*nP+*) between 20%-30% and an increase of *nP-* of only

0.1-2 % in the selection of undersized cod compared to 120 mm meshes in the BACOMA window and T90 codends (Table 5.7.1, Figure 5.7.2 and 5.7.3).

There is a contrasting effect on the discard ratio (see Table 5.7.3, dnRatio) by shifting from 120 mm to 110 mm: the discard ratio increases by 0.3-2.7 % in the T90 and decrease by 1.8-10.6 % in the BACOMA. This shows an effect of the gear type on the discard ratio, which was not evidenced in the Annex to JR. The Joint Recommendation of the BALTFISH advocates for a decrease in codend mesh size, regardless the gear type, but the results obtained how show the importance of the gear choice.

Table 5.7.1. Selectivity parameters and Indicators (np-, np+, dnRatio) for the different three scenarios and four gears: Annex to JR for details on the selectivity parameters (L50 and SR) used for the different gear type.

Gear	Literature		Scenario 1 (Real pop.)			Scenario 2 (Larger pop., +50 mm)			Scenario 3 (Smaller pop., -50 mm)		
	L50	SR	np-	np+	dnRatio	np-	np+	dnRatio	np-	np+	dnRatio
BAC-120	44.25	9.68	4.2	26.9	22.3	5.1	32.2	6.3	2.6	33.2	39.0
BAC-110	38.06	5.36	5.3	52.4	15.9	7.0	63.2	4.5	2.7	55.8	28.4
T90-120	44.53	6.32	0.9	19.4	7.8	1.2	25.4	1.9	0.5	27.1	12.4
T90-110	39.54	4.69	2.1	40.6	8.6	2.8	52.7	2.2	1.0	45.2	15.1
% undersized population			65.0			29.8			89.2		

Table 5.7.2. Difference (delta) between the selectivity Indicators (np-, np+, dnRatio) of 110 mm and 120 mm mesh size in the BACOMA and T90 gear. Scenario 1: Western Baltic Cod population from Baltic International Trawl Survey (BITS); Quarter 1; for year 2018 and ICES subdivisions 22 (ICES-DATRAS database - <http://datras.ices.dk>); Scenario 2: same population but shifted by subtracting 50 mm to all length classes (smaller individuals), and; Scenario 3: same population by shifting +50 mm all length classes of the real population (larger individuals).

		Scenario 1	Scenario 2	Scenario 3
BACOMA	delta(np+)	25.6	31.0	22.6
	delta(np-)	1.2	1.9	0.1
	delta(dnRatio)	-6.4	-1.8	-10.6

T90	delta(np+)	21.2	27.3	18.1
	delta(np-)	1.2	1.6	0.5
	delta(dnRatio)	0.8	0.3	2.7

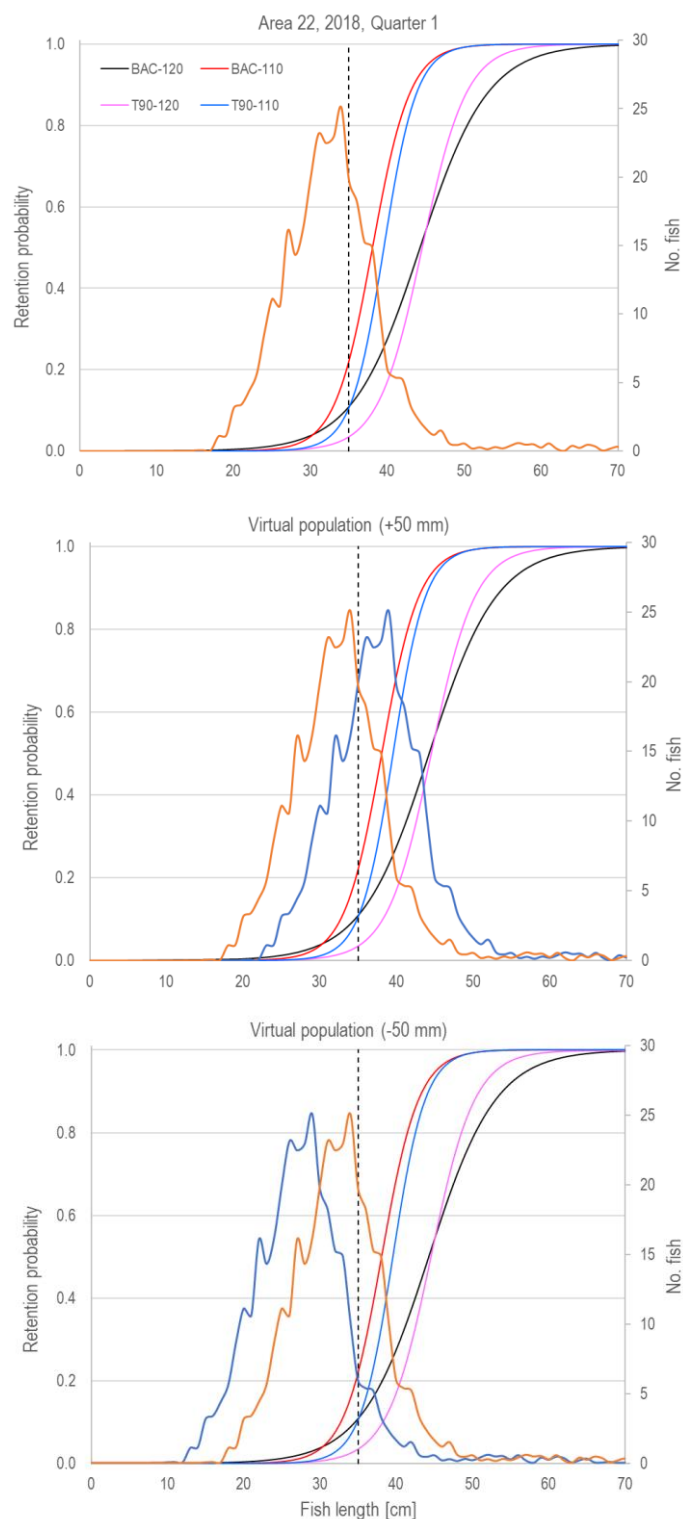


Figure 5.7.1. Known cod population in Area 22 (2018, Quarter 1, in orange) from Baltic International Trawl Survey (BITS) and two virtual populations defined by adding -50 and +50 mm to all classes. Selectivity of the four trawl configurations are reported on all three scenarios: BACOMA 110 mm and 120 mm (BAC-110 and BAC-120, respectively) and T90 110 mm and 120 mm (T90-110 and T90-120, respectively). The thin black dotted line represents MCRS set at 35 cm.

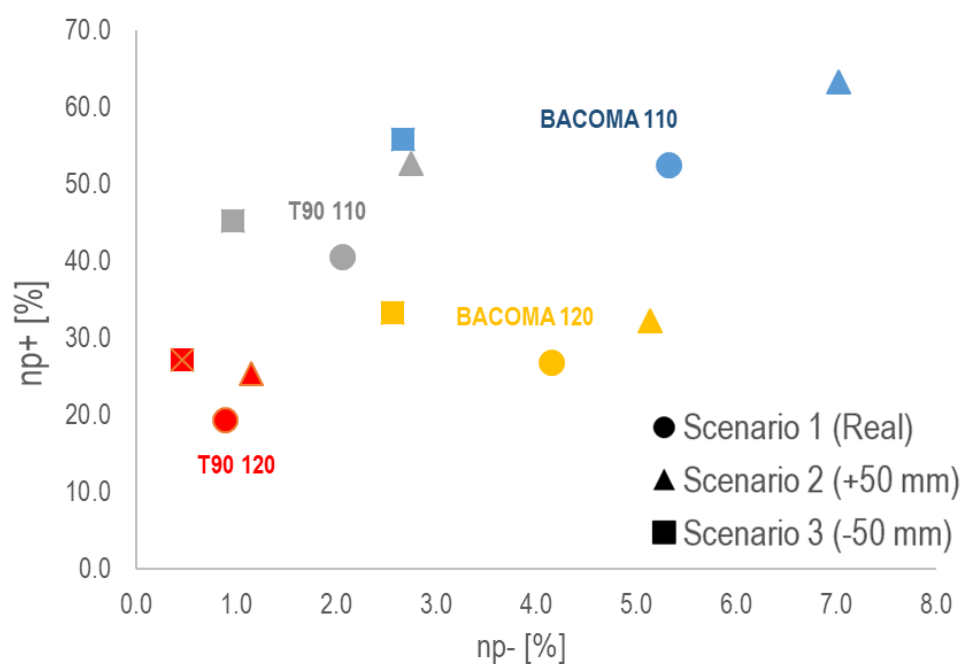


Figure 5.7.2. Indicators np^- and np^+ for different scenario, gear type and mesh size. Selectivity of the four trawl configurations are reported on all three scenarios: BACOMA with square-mesh of 110 mm and 120 mm (BAC-110 and BAC-120, respectively) and T90 with mesh size of 110 mm and 120 mm (T90-110 and T90-120, respectively).

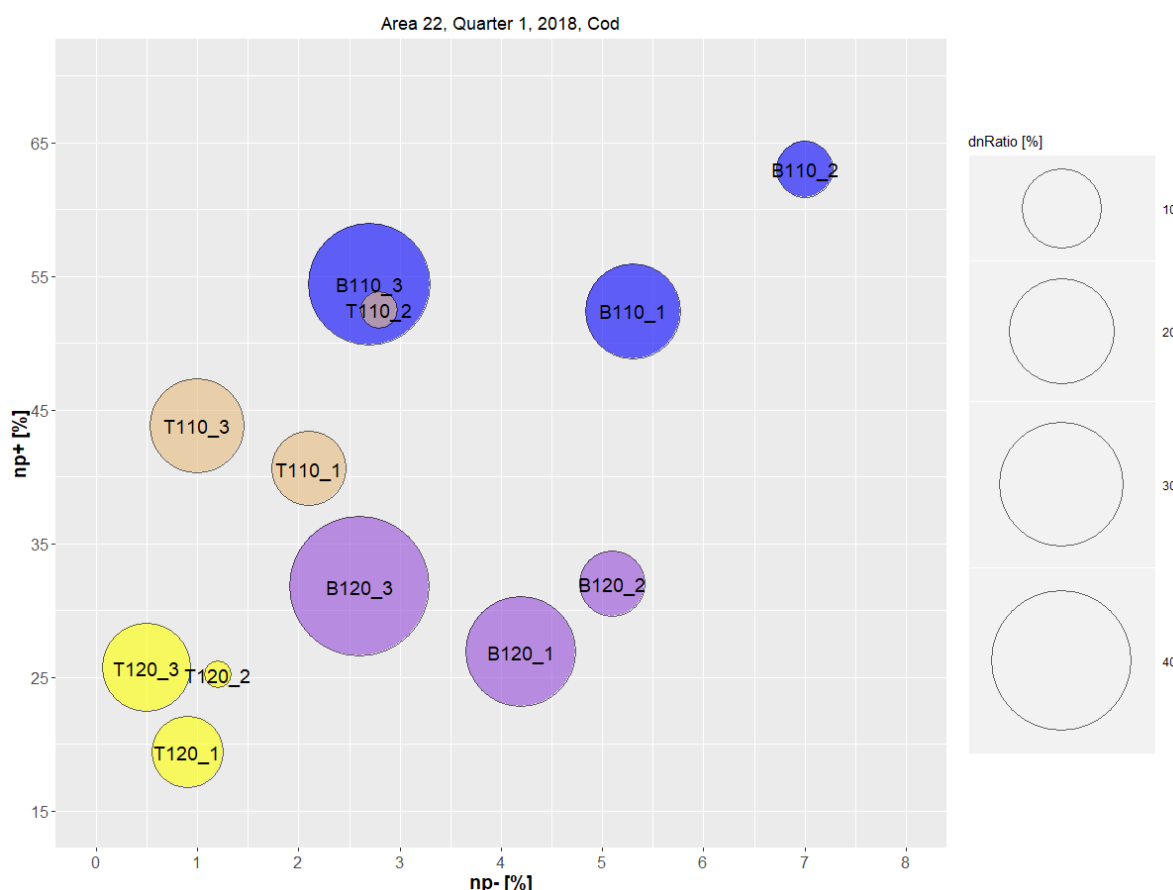


Figure 5.7.3. Indicators np-, np+ and dnRatio for different scenario, gear type and mesh size. Selectivity of the four trawl configurations are reported on all three scenarios: BACOMA with square-mesh of 110 mm and 120 mm (BAC-110 and BAC-120, respectively) and T90 with mesh size of 110 mm and 120 mm (T90-110 and T90-120, respectively). Each bubble has an acronym in a general form YYYY_S with the following meaning: X is the gear type (B: BACOMA, T: T90); YYY is the mesh size (110 or 120 mm); and S is the Scenario (1: Real population of cod in Area 22, quarter 1 of 2018; 2: larger population; 3: smaller population).

STECF conclusions

STECF concludes that the information presented in the report is not sufficient to fully assess the significance of the effect of mesh size reduction. Additional analyses including management strategies evaluation would also be necessary to fully assess the effect of gear change on fishing mortality in relation to the stated objectives of the Joint Recommendation.

The report of the Thünen institute states that 110 mm codend is more selective than 120 mm. (in terms of lower ratio of undersized cod in the catches). However, in the STECF analyses this reduction is only observed in the BACOMA codend but not in the T90 codend. Further experiments would be necessary to provide statistically valid conclusions on the effect of mesh size reduction on discard ratio.

STECF analysed also the efficiency of the different mesh sizes under different scenarios of gears (T90 and BACOMA) and population structures (if populations would be constituted of either rather smaller or rather larger individuals). STECF notes that a mesh reduction produces an increase in the fractions of both undersized and legal individuals (nP- and

nP+, respectively)), indicating that 110 mm is a more efficient mesh size, regardless of the codend design. The increase in the efficiency in catching legal sized individuals is 10-20 times larger than the efficiency in retaining the undersized individuals.

STECF notes that trawl efficiency and selectivity vary with trawl design. This and other technical properties of the fishing gear (e.g. twine thickness and material, codend circumference, as confirmed by the Annex to JR) are important to identify the change in selection size and catch effort indices.

References

- Herrmann, B., Sistiaga, M., Nielsen, K.N., Larsen, R.B., 2012. Understanding the size selectivity of Redfish (*Sebastes* spp.) in North Atlantic Trawl Codends. *J. Northw. Atl. Fish. Sci.* 44, 1–13.
- Sala, A., Lucchetti, A., Perdichizzi, A., Herrmann, B., Rinelli, P., 2015. Is square-mesh better selective than larger mesh? A perspective on the management for Mediterranean trawl fisheries. *Fisheries Research*, 161: 182-190 (doi:10.1016/j.fishres.2014.07.011).
- Sala, A., Herrmann B., De Carlo F., Lucchetti, A., Brčić J., 2016. Effect of codend circumference on the size selection of square-mesh codends in trawl fisheries. *PLoS ONE* 11(7): e0160354 (doi:10.1371/journal.pone.0160354).
- Sala, A., Brčić, J., Herrmann, B., Lucchetti, A., Virgili, M., 2017. Assessment of size selectivity in hydraulic clam dredge fisheries. *Canadian journal of fisheries and aquatic sciences*, 74: 339-348 (doi:10.1139/cjfas-2015-0199).

5.8 Evaluation and assessment of the impact of the use of gillnets in the anglerfish fisheries with shark by-catches in area 8

Background provided by the Commission

France provided a study by IFREMER showing that their 2-vessel 290 mm trammel net fleet targeting anglerfish in area VIII around the Ile d'Yeu have very low levels of shark by-catches and discards. This amounts to 0.6% and 0.7% of the total catches, which, according to the study, represent a marginal level of catches and less than 5kg per day. The use of gillnets below 600m in area VIII is banned in accordance with article 34b paragraph 2(a) of the Council Regulation 850/98. In its request, the French administration has indicated that this fleet suffered economically from this ban and from the one on porbeagle fishing. In light of the conclusions provided by IFREMER, France has requested an exemption from article 34b paragraph 2(a) of Regulation 850/98, in order for this 2-vessel fleet in area VIII to use gillnets below 600m. This exemption mechanism is made possible by article 34b paragraph 11: *"After consulting STECF, the Commission may adopt implementing acts excluding specific fisheries of a Member State, in ICES sub-areas VIII, IX and X, from the application of paragraphs 1 to 9, where information provided by Member States shows that those fisheries result in a very low level of shark by-catches and of discards"*

Request to the STECF

On the basis of article 34b paragraph 11 of Council Regulation 850/98, and the study provided by IFREMER showing low levels of shark by-catches, STECF is requested to: (1) review the study and (2) assess what would be the impact on the shark population of lifting such a ban on gillnets for the two French vessels in area 8.

General comments from STECF regarding the request

STECF encountered a number of issues in relation to the clarity and framing of the request and associated background documents. The STECF response is thus based on the following considerations:

Type of fishery concerned by of the request

The use of gillnets below 200m in area VIII is banned in accordance with article 34b paragraph 2(a) of the Council Regulation 227/2013 which amended the EC Regulation 850/98. STECF notes that this prohibition was primarily intended to limit fishing mortality on deep-water species, particularly deep-water sharks. However, the existing derogations (article 34b, paragraphs 2a and 2b) allow for the continuation of fisheries using gillnets (2a) and entangling nets (2b) at depths above 600m in area VIII, provided a number of technical and operational conditions are met, which relate specifically to the construction of the nets, the maximum amount of netting that can be deployed, the maximum soak time and a "shark" by-catch limit of 5% in weight.

STECF notes however that while the EC background document and requests refers to "gillnet" in reference to the regulation above, the French document (IFREMER report) refers to "trémail", which in English is translated as "trammel net". STECF notes that trammel

nets are defined separately from gillnets and entangling nets under article 3 of EC Regulation 850/98:

g) bottom set gill nets or entangling nets shall mean any fixed gear made up of a single piece of net, fixed, or capable of being fixed, by any means to the bottom of the sea;

h) trammel nets shall mean any fixed gear made up of two or more pieces of net hung jointly in parallel on a single headline, fixed, or capable of being fixed, by any means to the bottom of the sea.

Therefore, STECF notes that by definition, trammel nets are not included under the derogations provided for gill nets (34b, 2a) nor for entangling nets (34b, 2b). Additionally, 2a refers to gillnets in ICES divisions VIIIC with a mesh size equal to or greater than 80 mm and less than 110 mm (whereas the mesh size of the trammel nets used by the two French vessels for which the exemption is requested is 290 mm), and 2b refers to entangling nets with a mesh size equal to or greater than 250 millimetres. Therefore, STECF notes that the exemption requested by France of article 34b paragraph 2a only applies to gillnets and not to the trammel net fishery actually operated by the two vessels. Finally, the fishery is described to operate between 200m and 600m deep, not in the depth below 600m covered by the derogation.

STECF highlights that in any case, article 34b paragraph 10 states that the quantity of chondrichthyans retained on board by any vessel using the gear type described in paragraph 2b shall be no more than 5 %, by live-weight, of the total quantity of marine organisms retained on board.

Finally, STECF notes that while the request only concerns two small-scale fishing vessels of Ile d'Yeu in France fishing with trammel nets of 290 mm mesh size targeting angler fish in Bay of Biscay (Area VIII), the consequences of this request may have far reaching consequences as there are similar fishing vessels from other countries (e.g. Spain and Portugal) fishing in this area³

Definition of sharks, elasmobranchs and chondrichthyans

STECF notes that the use of the word "sharks" is somewhat misleading in both the EC Regulations concerned as well as in the IFREMER report. According to the EC⁴, as well as FAO⁵, including the International Plan of Action for Conservation and Management of Sharks⁶, all chondrichthyans are commonly referred to as 'sharks', thus including elasmobranchs (sharks and rays) and ghost sharks (chimaeras). STECF has consistently used throughout this ToR the word "chondrichthyans" to include sharks, rays, skates and chimaeras

Species names

³http://www.nwwac.org/fileupload/Image/GT2_Presentacion_Problematika_Redes_Enmalle_Fondo_JCC_Bilbao_Abril2013_ES.pdf

⁴ https://ec.europa.eu/fisheries/marine_species/wild_species/sharks_en

⁵ <http://www.fao.org/ipoa-sharks/background/sharks/en/>

⁶ <http://www.fao.org/ipoa-sharks>

STECF notes that the study was provided only in French, and no scientific Latin names appear in the main body of the report, only French vernacular names (except in a figure in the annex). As explained further below in STECF comments, this has created some uncertainties about which species are actually referred to. STECF has used the following conventions:

Raie circulaire: *Leucoraja circularis*

Chimères: Chimaeridae (possibly *Quimera monstrosa*)

Holbiches: *Scyliorhinus canicula* (and likely not *Apristurus* as reported in the report)

Squale savate: *Deania calcea*

Chien espagnol: *Galeus melastomus*

Squale-chagrin commun: *Centrophorus granulosus*

Squale liche: *Dalatias licha*

Squale-grogneur commun: *Scymnodon ringens*

Requin gris: *Hexanchus griseus*

Pocheteau de Norvège: *Dipturus nidarosiensis*

Requin-taupe commun: *Lamna nasus*

Sagre rude: *Etmopterus princeps*

Requin-ha: *Galeorhinus galeus*

Summary of the study provided by IFREMER

STECF has reviewed the report from IFREMER "*Analyse des observations à la mer menées sur les navires fileyeurs à baudroies de l'île d'Yeu*", written by Anne-Sophie Cornou, Marion Scavinner, Alain Biseau. June 2017 (IFREMER report). The report describes the monitoring of two artisanal fishing vessels fishing from the Ile d'Yeu (Bay of Biscay) from February 2016 to January 2017. The sampling has two components: a sampling scheme on board carried out by observers (Obsmer), and a self-sampling scheme carried out by fishermen. In both sampling components, all observations were carried out in depths above 600m.

The Obsmer is based on 12 "marées" (fishing trips), representing 13% of the total number of trips and 69 "opérations de pêche" (OP) (fishing sets), representing 36% of the 190 OPs observed. The identification and weight of each species in the catch, differentiating the retained from the discarded, was carried out, as well as measures (not specified which ones) of the most important species (not specified which ones).

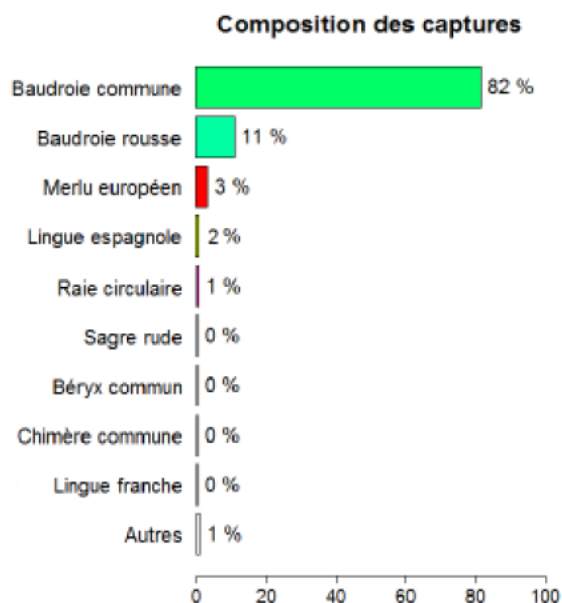
The self-sampling scheme included 41 "marées" (fishing trips) and 204 OP (or days) (91% of the 225 days). In this case, **only** chondrichthyans including elasmobranchs (sharks and rays) and chimaeras were surveyed. The Identification of the species was performed and total weight by species was recorded in all self-sampled OP, although the report acknowledges that some species could be incorrectly classified, which may explain the difference in species occurrence compared to the sampling scheme "Obsmer". Despite this, IFREMER states that potential errors in taxonomic classification shall not affect the percentage of chondrichthyans' landings from the total catch.

Obsmer data

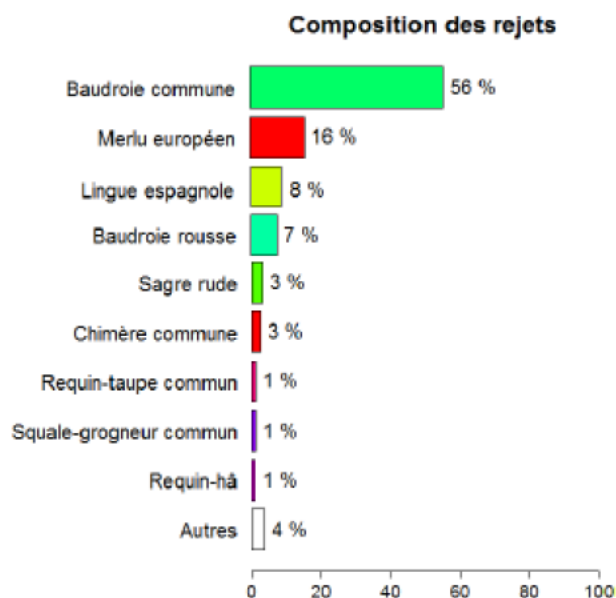
The survey on-board (see figure below "composition des captures") demonstrates that landings of the two species of monkfish (*Lophius piscatorius* and *L. budegassa*) constitute

altogether 93% of the total catch made by the two fishing vessels, followed by other species representing each one less than 5% of the total catch, and confirming the selective character of the fishing gear in the actual conditions, which can be considered as targeting monkfish.

According to the report, what IFREMER classifies as “sharks” (IFREMER excludes rays and chimeras) represent less than 1% of the total catch. The frequencies of occurrence in the catch are dominated (top 3) by *L. piscatorius* (present in 99% of the OP surveyed), hake (*M. merluccius*; 62%) and Spanish ling (*Molva macrophthalma*; 38%).



According to the IFREMER report, 92% of the total catch is retained on-board and 8% is discarded. All chondrichthyan species are discarded except *Raja circularis*, which is landed. From the discarded fraction (see figure below “composition des rejets”), 63% corresponds to *Lophius spp* whereas a percentage of at least 6% corresponds to sharks including sagre rude (*Etmopterus princeps*), 3%, and requin-taupe commun (*Lamna nasus*), squale-grogneur commun (*Scymnodon ringens*) and requin-ha (*Galeorhinus galeus*), each one with 1% of the total discards (the category “other” represents 4% of the total discards)



Self-sampling data

According to the report (table below "proportion dans la capture...",) the so-called "raie circulaire" (*L. circularis*) represents nearly 90% of landing of all condrichthyans (but only 1% of the total catch, see figure above). According to the report, sharks represent less than 7.4% of the total catch of chondrichthyans. From all these condrichthyans, only *L. circularis* is landed and commercialised, the rest is discarded.

Proportion dans la capture totale des espèces observées (élasmobranches + chimères) (%)		
Raie circulaire	89.3	[82.6 - 92.7]
Chimères	3.4	[2.4 - 5.2]
Holbiches	3.1	[1.9 - 5.2]
Squale savate	1.4	[0.7 - 2.6]
Chien espagnol	1.3	[0.8 - 2.2]
Squale-chagrin commun	1.1	[0.6 - 2]
Squale liche	0.3	[0.1 - 0.7]
Squale-grogneur commun	0.2	[0 - 0.5]
Requin gris	0	[0 - 0.1]
Pocheteau de Norvège	0	[0 - 0]

IFREMER report also estimates (table below "Estimation des poids...") that 4.7 kg of "shark" species (marked in yellow colour in the table below: rays and chimeras are excluded) are caught and rejected in average per day. Based on the estimated self-sampled average catch carried out by the two vessels in the 204 OP (750 kg by OP), the proportion of sharks in the total catch is estimated at 0.6% (4.7 / 750), which is similar to the % estimated with Obsmer data. From this table, STECF estimates that the total amount of "sharks"

(yellow lines) caught by the two vessels in the 204 OP amounts to 971 kg (STECF however estimates that this value would raise to an estimated 1071 kg if the overall number of OP (224) is taken into account).

Tableau 5 : Estimation des poids des individus capturés par espèce (moyenne et médiane des captures par OP(jour)).

Espèce	Catégorie	Poids moyen par OP échantillonnée (kg)	Poids médian par OP échantillonnée (kg)	Somme des poids pour les OP échantillonnées (kg)	Nombre d'OP échantillonnées
Holbiches	DIS	2.0	0.0	409.0	204
Squale-chagrin commun	DIS	0.7	0.0	142.0	204
Chimères	DIS	2.2	2.0	453.3	204
Squale liche	DIS	0.2	0.0	38.5	204
Squale savate	DIS	0.9	0.0	183.0	204
Pocheteau de Norvège	DIS	0.0	0.0	1.5	204
Chien espagnol	DIS	0.8	0.0	170.8	204
Requin gris	DIS	0.0	0.0	3.9	204
Raie circulaire	DIS	0.0	0.0	0.0	204
Squale-grogneur commun	DIS	0.1	0.0	24.0	204
Raie circulaire	LAN	20.9	18.0	480.1	23

Overall the IFREMER report concludes that the proportion of the catch made by the two vessels and constituted by sharks (rays and chimeras excluded) are low (<1%) and very similar independently of the type of data (Obsmer and self-sampling) used allowing IFREMER to affirm that the catch of sharks by the two vessels are very low / negligible.

STECF comments on the study carried out by IFREMER

STECF considers it surprising that only one ray species is caught (*Leucoraja circularis*), because in area VIII-Bay of Biscay there are many other ray species such as *Raja clavata* and *R. montagui* that seem more frequent in the area than *L. circularis*. The 2018 Report of the Working Group on Elasmobranch Fishes (WGEF) provides French landings statistics of *R. clavata* and *R. montagui* in the Bay of Biscay from more than 100 métiers, showing that trammel nets are the main métier for *R. montagui*, while trawl is the main métier for *R. clavata*⁷.

STECF highlights that catch values of petite roussette/holbiche (*Scyliorhinus canicula*), are also surprisingly low considering that this species is very common at these depths⁸

STECF also notices that the IFREMER report does not detail the technical characteristics of the gear (other than the 290 mm mesh size), the characteristics of the vessels and the characteristics of the fishing operations (soak times, lengths of the nets deployed, etc) other than depths where the surveys were carried out.

7 ICES WGEF REPORT 2018 ICES ADVISORY COMMITTEE ICES CM 2018/ACOM:1

8 <http://firms.fao.org/firms/resource/13460/en>

STECF comments on the impact of the fishery on shark species

About the use of the term “sharks”

As mentioned above, STECF highlights the need to consider chimeras and rays (i.e. all chondrichthyans) as “sharks”, and not exclude them as the IFREMER report actually does.

The inclusion of chimeras and particularly rays in the evaluation of landings and discards would lead to an increase of the proportion of “sharks” in the catch: in this case, considering the Raie circulaire (*L. circularis*) and the chimeras, the average kg of sharks caught would not be 4.7 kg but 27.8 kg per OP (from the 750 kg estimated by IFREMER), and therefore the percentage of sharks caught would be 3.7%: STECF notes however that this is still below the maximum 5% threshold stated in paragraph 10 of article 34b.

About the impossibility to evaluate the impact of the fishery on chondrichthyans

STECF acknowledges that the monitoring of two vessels by IFREMER from February 2016 to January 2017 provides basic information on the fishery, but not enough to evaluate the impact of the two vessels on sharks if the exemption is given. STECF is unable to judge whether the total reported catch of sharks associated with the trammel net fisheries (about 1000 kg per year) has a low or high impact on shark populations in area VIII, because some uncertainties remain on the actual species distribution in the catches, and because the current exploitation rate of most species is not known. As such, it may be possible that the low catch rates observed are due to the severely depleted nature of some chondrichthyans populations.

Most of chondrichthyans affected by the French trammel net fisheries have not been evaluated by ICES (ICES 2018 Report of the Working Group on Elasmobranch Fishes, WGEF), because there are insufficient data available to assess these species. No reference points have been proposed for any of the stocks concerned. The ICES report only provides landings and survey data for rays including *R. circularis*, and the dogfish species *S. canicula* and *G. melastomus*. For *Raja circularis* in the Bay of Biscay –areas 8a,b,d- landings have steadily declined from 2005 (80 t) to 2016 (22 t) and zero tons in 2017 therefore the landings reported in the Ifremer report for this species are already more than the total landings in area 8 reported to ICES.

Landings data of chondrichthyan species are highly uncertain, and further efforts are required to construct a meaningful time-series. In recent years, catch rates of lesser-spotted dogfish *S. canicula* have been increasing in almost all surveys demonstrating it is a productive demersal elasmobranch that is often discarded (with a high discard survival) and is known to scavenge on discards (ICES 2018 WGEF Report). The discard survival rates of all the other species are not known.

About the vulnerability of target and discarded chondrichthyans

Beyond the limited information provided by ICES on the state of the chondrichthyan stocks, STECF notes the global vulnerability status of many shark species. Shark populations are generally fragile because of certain characteristics of their life cycle (low fertility rate, large juveniles, slow growth and late maturity) and their capacity to restore their population in case of overfishing is therefore limited. As a result, these species, which play a key role in maintaining balance in marine ecosystems, can be more easily endangered by overfishing and/or illegal fishing. All 14 species reported in the IFREMER report are included on the Red List of the International Union for Conservation of Nature (IUCN) under different

categories⁹, from which 8 fall in the categories Threatened and Near Threatened. These are:

Common name	Scientific name	IUCN category ¹⁰
Raie circulaire	<i>Leucoraja circularis</i>	Vulnerable
Chimères	Chimaeridae, possibly <i>Quimaera monstrosa</i>	Near threatened
Squale savate	<i>Deania calcea</i>	Vulnerable
Squale-chagrin commun	<i>Centrophorus granulosus</i>	Critically endangered
Squale liche	<i>Dalatias licha</i>	Vulnerable
Requin gris	<i>Hexanchus griseus</i>	Near threatened
Pocheteau de Norvège	<i>Dipturus nidarosiensis</i>	Near threatened
Requin-taupe commun	<i>Lamna nasus</i>	Critically endangered

About the potential impact of an exemption

STECF highlights that there are many conditionalities associated with paragraph 2a of article 34b of EC Regulation 227/2013. Therefore, would an exemption to this article be granted, fishers will be allowed to surpass the maximum lengths of nets deployed and the maximum soaking times described in 2a of article 34b of that Regulation, and nets will be allowed to be deployed below 600 m (whereas today they operate in waters shallower than 600 m). STECF emphasises that the data presented in the IFREMER report do not allow evaluating the impact of these other conditionalities on vulnerable deep-water shark

9 From all IUCN categories, the following three categories are assigned to taxa on the basis of quantitative criteria that are designed to reflect varying degrees of threat of extinction: Critically Endangered, Endangered and Vulnerable, taxa in any of these three categories are collectively referred to as 'threatened' (IUCN Guidelines) The category Near Threatened is applied to taxa that do not qualify as threatened now, but may be close to qualifying as threatened, and to taxa that do not currently meet the criteria for a threatened category, but are likely to do so if ongoing conservation actions abate or cease. The category Least Concern is applied to taxa that do not qualify (and are not close to qualifying) as threatened or Near Threatened. It is important to emphasize that "least concern" simply means that, in terms of extinction risk, these species are of lesser concern than species in other threat categories. It does not imply that these species are of no conservation concern. Finally, a taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.

10 The Conservation Status of Northeast Atlantic Chondrichthyans Report of the IUCN Shark Specialist Group Northeast Atlantic Regional Red List Workshop Peterborough, UK, 2006

populations, and in particular if fisheries would be allowed to operate below 600m. For example the gulper shark (*Centrophorus granulosus*), a IUCN critically endangered species that is also in the OSPAR List of Threatened and Declining Species and Habitats, is found more abundant at these deep waters¹¹

STECF advises that should an exemption be granted, catches from the benefiting fisheries should be closely monitored through an on-board observer scheme. Such a scheme should collect and report all catches (landings and discards separately) by species, together with the amount of effort deployed to obtain such catches. Because many shark species are difficult to identify to the species level, STECF highlights the importance of adequate level of taxonomic training for the observers. In this sense, STECF considers that self-sampling programs are not appropriate for monitoring the fishery of vulnerable species such as sharks, because fishermen may not provide the correct species name and associated catches, voluntary or not. For example, fishermen may be incentivised to not declare the catch of requin-taube commun (*Lamna nasus*), a IUCN vulnerable species whose fishery is prohibited for the EU vessels¹², as this species appears in the Observer data (as discarded) but not in the self-sampling data.

STECF conclusions

STECF concludes that that by definition, trammel nets are not included under the derogations provided for gill nets (34b, 2a) nor for entangling nets (34b, 2b), and therefore the exemption requested by France of article 34b paragraph 2a only applies to gillnets but not to trammel nets.

STECF highlights the need to consider chimeras and rays (i.e. all chondrichthyans) as "sharks", and not exclude them as the IFREMER report actually does. The inclusion of chimeras and particularly rays in the evaluation of landings and discards would lead to an increase of the proportion of "sharks" in the catch, bringing the percentage of sharks caught at 3.7% of the total catch, which is though still below the maximum 5% threshold stated in paragraph 10 of article 34b

STECF is unable to judge whether the reported catch of sharks associated with the trammel net fisheries (about 1000 kg) has a low or high impact on shark populations in area VIII, because of the improper recording of the various species and because the status of most of the chondrichthyans populations is unknown. Nevertheless, many of these are red listed by IUCN as Threatened and Near Threatened.

STECF raises concern that should an exemption to paragraph 2a of article 34b of EC Regulation 227/2013 be granted, then fishers will be allowed to surpass the maximum lengths of nets deployed and the maximum soaking times described in 2a of article 34b of that Regulation and nets will be allowed to be deployed below 600 m. which may potentially lead to increase in the catch rates of deep sea sharks.

STECF considers that monitoring the fishery of vulnerable species such as chondrichthyans is challenging with self-sampling program because of the difficulty in identifying species.

11 Bañón, R., Piñeiro, C., Casas, M. 2008. Biological observations on the gulper shark *Centrophorus granulosus* (Chondrichthyes:Centrophoridae) off the coast of Galicia(north-western Spain, eastern Atlantic). Journal of the Marine Biological Association of the United Kingdom, 88(2), 411 –414.

12 ICES Working Group on Elasmobranch Fishes (WGEF) 2018. ICES ADVISORY COMMITTEE

ICES CM 2018/ACOM:16

Independent observations onboard should be supplied by well-trained observers with specific experience in chondrichthyan taxonomy.

6. BACKGROUND DOCUMENTS

Background documents are published on the meeting's web site on:
<https://stecf.jrc.ec.europa.eu/plen1803>

7. CONTACT DETAILS OF STECF MEMBERS AND OTHER PARTICIPANTS

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